ABSTRACTS

ABSTRACTS OF THE XVII ANNUAL MEETING OF THE BRAZILIAN SOCIETY OF HYPERTENSION

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AREA: ACADEMIC LEAGUES (AL)

AL-01 | Advances and challenges of SUS in three decades of progress: Integrative review from literature

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Objective: To verify in the literature the knowledge produced in the last 10 years about the advances and challenges of the Unified Health System (SUS).
Methods: A study of integrative review of the literature was developed, with a sample of 12 studies selected by criteria.
Results: The SUS has achieved many advances such as universality, the National Immunization Program, the Family Health Program, the provision of medications, the increase in life expectancy and the reduction of infant morbidity and mortality. The challenges to be faced by SUS are weak financing; precarious infrastructure; lack of material and human resources; large numbers of people to be served; services of high complexity away from the place of origin; failures in primary care; extinction of the SUS in the face of the political crisis.
Considerations: SUS is a health policy that has shown good results and minimizes social inequalities, but there are still many challenges.

AL-02 | Epidemiological profile of hypertensive and/or diabetic elderly patients with renal failure in a reference hospital in Aracaju-SE

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Introduction: Systemic Arterial Hypertension (SAH) and Diabetes Mellitus (DM) are comorbidities that increase the incidence of kidney injury. When in synergy, hypertension and DM contribute to a worse prognosis due to the potentiation of lesion progression. The increased rate of these conditions, associated with the widening of the top of the Brazilian age pyramid, are factors that promote the weakening of the glomerular basement membrane, the expansion of the mesangial matrix, the decrease in the number of podocytes, glomerulosclerosis and tubulointerstitial fibrosis, as well as increase intraluminal hydrostatic pressure and thus corroborate the gradual loss of renal function.
Objective: To evaluate the epidemiological profile of hypertensive and/or diabetic elderly with renal failure (RF).
Methods: Analytical, observational and cross-sectional study based on the review of medical records and the application of a questionnaire to patients treated at a hospital service in Aracaju-SE. The patients were aged 60 years or older. They were classified according to DM, SAH, both diseases and control, and to gender and were divided by age group into three groups: A (60-69 years); B (70-79 years); C (80 years and over).
Results: In this study, of 105 patients evaluated, 81 (77.14%) presented information about the Glomerular Filtration Rate, which allowed assessing the prevalence of RF. The study features 47 women. Of these, 31 (65.96%) had RF, 2 (6.45%) with DM, 10 (32.26%) with hypertension, 18 (58.06%) with DM and hypertension, and 1 (3, 23%) had none of these comorbidities. Of the 34 men interviewed, 18 (52.94%) had RF, and 1 (5.56%) had DM, 4 (22.22%) had SAH, 10 (55.56%) had DM and SAH and 3 (16.67%) had none of these comorbidities. Regarding age group, hypertensive patients with RF, 6 (42.86%) group A; 5 (35.71%) group B and 3 (21.43%) group C. Of the patients with DM with RF, 3 (100%) were from group B.
Conclusion: Based on the data of this research, in the female gender, the association between DM and SAH and the age group between 60 and 79 years constitute the most prevalent epidemiological

profile of incidence of RF in the elderly. Therefore, the prevention and control of these conditions are essential to ensure a better quality of life in old age.

AL-03 | Treatment of hypertensive encephalopathy in the five Brazilian regions: A descriptive analysis from 2013 to 2017

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Introduction: Hypertensive encephalopathy (HE) occurs when blood pressure rises to the point of overloading the mechanism of cerebral self-regulation, which may result in blindness, seizures, coma and death. Pathological findings include endothelial dysfunction, cerebral edema, petechial hemorrhages, and microinfarcts.

Objective: To describe the profile of hospitalizations for the treatment of HE in the five regions of the country from 2013 to 2017, considering the following variables: hospitalizations, mortality rate, average length of stay.

Method: Descriptive observational study with data collection from the DATASUS- web portal (SIH/SUS). For statistical analysis, Analysis of variance ANOVA (single factor) was used.

Results: Regarding hospitalization, by ANOVA, it was found that Southeast (SE) has the largest number of hospitalizations totaling 4244, with an average of 848.8; followed by the Northeast (NE) which obtained a total of 2031, with an average of 406.2. The third region in the number of hospitalizations is the South (S) with a total of 1557 hospitalizations and an average of 311.4. The Midwest (MW) was in fourth position in number of hospitalizations, with a total of 842, an average of 168.4. The last region in number of hospitalizations was the North (N) with a total of 592 hospitalizations, average of 118.4. Concerning the Mortality rate it was found that NE has the highest mortality rate with an average of 10 018; followed by N which obtained an average of 9.62. The third region in average mortality rate is SE with an average of 6.46. The South was in fourth position with an average mortality of 6.19. The last region in the average mortality rate was MW with an average of 5.83. In addition, a $P = 0.00112$ and an F (6.94) higher than the critical F (2.86) were found. There is a statistically significant difference between the mortality rate from Hypertensive Encephalopathy in the 5 regions. In the average length of stay it was found that NE has the highest length of stay with an average of 7.38; followed by N which obtained an average of 6.52. The third region in average permanence is the SE with an average of 6.16. The MW was in fourth position with an average permanence of 5.48. The last region in average stay was the South with an average of 5.36.

Conclusion: The socioeconomic, demographic and technological differences that are present in the national territory may justify the diversity in the number of hospitalizations, in the mortality rate, in the average hospital stay among the five regions, especially the Northeast with the highest mortality rate.

AL-04 | Guidelines of arterial hypertension: Brazilian and European

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Introduction: Arterial hypertension (AH) is a multifactorial disease characterized by sustained elevation of blood pressure levels. Considering its complexity and prevalence in the population, AH guidelines are essential in clinical practice to determine the diagnosis and elaboration of therapeutic planning.

Objective: Compare the Brazilian and European Guidelines on AH in order to evaluate parities and differences between the conducts adopted by the countries.

Method: Based on the 7th Brazilian Hypertension Guideline (2017) and the Guideline for the Management of Arterial Hypertension (2018), we evaluated the values of normotension, prehypertension, blood pressure target in patients with hypertension and diabetes, MP in elderly and type of therapy.

Results: In the Brazilian guideline, measurements ≤120/80 mm Hg are considered as normotension, whereas systolic blood pressure (SBP) between 121-139 and/or diastolic blood pressure (DBP) between 81-89 mm Hg are indicative of prehypertensive patients. While in the European guideline, blood pressure (BP) ≤120/80 mm Hg is rated as optimal; the normal category is designated for 120-129 mm Hg SBP and 80-85 mm Hg DBP; finally, the definition of high normal is used with SBP and DBP between 130-139 and/or 85-89 mm Hg, respectively. As for patients with hypertension and diabetes, the Brazilian guideline indicates MP values between 130/80 and 120/70 mm Hg, since it states that DBP <60 mm Hg markedly increases the risk of coronary hypoperfusion and other cardiovascular events (CV). Already the European indicates values between 130-120 mm Hg for SBP and <80 mm Hg for DBP. Next, the European guideline suggests the adoption of drug combination for most patients with a diagnosis of hypertension, especially for those with SBP >150 mm Hg, stating that drug conjugation is usually more effective in decreasing blood pressure and has fewer CV effects and adverse effects than high-dose monotherapy. However, the Brazilian guideline recommends monotherapy for some groups.

Conclusion: According to data from the comparative analysis, it was observed agreement or discordant conducts in the guidelines.

AL-05 | Socio-demographic characteristics and cardiovascular risk factors in a population served in a campaign of a private higher education institution in the North Zone of Rio de Janeiro

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Introduction: Cardiovascular diseases (CVD) are the leading causes of mortality in Brazil and worldwide. Belonging to the group of chronic non-communicable diseases (NCDs), their risk factors are grouped into the non-modifiable (age, sex, and heredity) and modifiable (obesity, physical inactivity, diabetes, dyslipidemia, smoking, hypertension, stress, inadequate diet). In addition, the control and prevention of modifiable cardiovascular risk factors decrease CVD morbidity and mortality; therefore, epidemiological research is important to identify health inequity and monitor the progression of NCDs.

Objectives: The objective of this study is to perform a descriptive analysis of socio-demographic characteristics and risk factors of a population served in the health campaign of a private medical school in Rio de Janeiro.

Methods: Cross-sectional descriptive study whose data were collected by questionnaire. Variables analyzed: gender, age, year of graduation, blood pressure (BP) and pulse, body mass index (BMI), lifestyle, sleep quality, physical exercise, disease history and family history of cardiovascular disease (CVD). Statistical analyses were performed using SPSS version 21, considering statistically significant $P < 0.05$.

Results: In the sample studied (n = 333); 60.1% were female (n = 200); Self-reported 86.8% were white (n = 289); average age approximately 23 years (SD = 9.53); mean BMI of 23.6 (SD = 3.83). The most important risk factors for cardiovascular disease for this population were: 76.0% consume alcohol (n = 253); 9.6% smokers (n = 32); 80.4% with eating habits such as fat intake at least once a week (n = 268), with a prevalence of 23.4% consuming more than three times a week (n = 78); 23.7% add salt after food is ready (n = 79); 23.1 (n = 77) do not do physical activity; 5.4% (n = 18) hypertensive; 14.7 (n = 49) with hypercholesterolemia; 27% (n = 90) report anxiety or depression; 55.4% (n = 184) with a family history of cardiovascular disease; 19.2% had poor or very poor sleep quality.

Conclusion: Health campaigns are of great value for the identification of risk factors for CVD and for interventions in this population; in order to act in the prevention of these diseases through the control of factors such as eating habits, alcoholism and sedentary.

AREA: BASIC (B)

B-01 | Reflex modulation of vasomotor sympathetic and peripheral autonomic control on hypertension: Sequential effects of aerobic training

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Introduction: Our group demonstrated that exercise training (ExT) normalizes cardiac baroreflex sensitivity (BrS) and cardiac vagal activity, simultaneously to the reduction of oxidative stress, NF-κB activity and pro-inflammatory cytokine expression in the hypothalamic paraventricular nucleus. However, it is not known whether ExT is effective to correct molecular alterations on other autonomic control areas, as well as rectify reflex control of sympathetic vasomotor.

Aim: To analyze sequential adaptation to ExT on cardiovascular and autonomic parameters in spontaneous hypertensive rats (SHR), as well as molecular mechanisms on nucleus tractus solitarii (NTS) and rostral ventrolateral medulla (RVLM).

Methods: SHR were submitted to ExT on treadmill during 8 weeks or kept sedentary. Parameters were evaluated on weeks 0, 2, 4 and 8 of ExT. Sedentary normotensive (Wistar Kyoto rats) and hypertensive rats were analyzed on week 0 and 8. Rats were submitted to chronic catheterization of femoral artery and vein, and to blood flow probe implantation on iliac artery. After 4 days, arterial pressure (AP), heart rate (HR), blood flow and peripheral vascular resistance were measured on freely-moving animals. AP and pulse interval variability were calculated through spectral analysis. Vascular baroreflex control was determined through phenylephrine and sodium nitroprusside administration. Animals were euthanized and NTS and RVLM samples were collected to verify reactive oxygen species content (HPLC), TNF-α, IL-6 and IL-10 gene expression (RT-PCR) and NF-κB activity (EMSA).

Results: When compared to WKY, sedentary SHR showed elevated AP, HR and peripheral vascular resistance, as well as suppressed vascular BrS and increased inferior plateau. After 8 weeks, trained SHR demonstrated decreased AP and peripheral vascular resistance. Two and four weeks of ExT reduced resting HR and improved vascular BrS, respectively. Along our protocol, AP variability, vascular sympathetic activity, NF-κB activity on NTS and reactive oxygen species content on NTS and RVLM increased in sedentary SHR. ExT prevented the rise of these parameters. S-SHR demonstrated elevated

TNF-α and IL-6 gene expression on NTS and RVLM, which was normalized on 2-weeks trained SHR.

Conclusion: ExT reverts cardiovascular and autonomic alterations induced by hypertension, which is correlated to molecular modifications attenuation on NTS and RVLM.

B-02 | Ultrastructural changes in blood-brain barrier (BBB): Effects of hypertension and aerobic training

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Introduction: Recently we demonstrated that moderate-intensity aerobic training (T) reversed the increased BBB permeability within autonomic areas of hypertensive rats and improves the autonomic controls of the circulation (Buttler et al., *Front Physiol* 2017). Since ongoing experiments suggested the involvement of Caveolin-1 expression changes (the major constituent of endocytic vesicles responsible for transcellular transport across endothelial cell) in these responses, we evaluate now in spontaneously hypertensive rats (SHR) the effects of increased pressure and T on transcellular and paracellular transport in capillaries of hypothalamic paraventricular nucleus (PVN).

Material and Methods: Male SHR and Wistar rats (n = 7–8/group) allocated to T (55% of maximum capacity) or kept S for 4 weeks were chronically cannulated for recording hemodynamic parameters at rest. Rats were then deeply anesthetized for PVN harvesting, which was processed for transmission electron microscopy. Functional variables (baseline values of pressure and heart rate, their variabilities and spectral components) and ultrastructural BBB changes into PVN capillaries were analyzed (Two-way ANOVA, $P < 0.05$).

Results: T increased pulse interval variability and cardiac vagal modulation (+ 80% and +95%, respectively), and reduced baseline HR (−8%). T also increased spontaneous baroreflex sensitivity (+ 50%) and decreased the vasomotor sympathetic activity and systolic AP variability (~27%), reduced hormonal modulation (−32%) with a partial MAP reduction (from 170 ± 4 to 155 ± 4 mm Hg). Ultrastructural analysis of capillaries within preautonomic PVN areas (~22-30 capillaries/rat, 2 rats/group) revealed that SHR-S exhibited larger caliber (+ 27%) and increased number of endocytic vesicles (+ 67%), with unchanged membrane thickness and number of tight junctions. On the other hand, T reduced the density of endocytic vesicles (-53%) in SHR, without changing that of Wistar-S rats. In both groups, there was no change in tight junctions, that blocked the paracellular transport.

Conclusion: Increased capillary permeability in PVN of SHR is due to elevated transcytosis, with no change in the paracellular transport. T corrects and maintains BBB integrity through reduction/ normalization of transcytosis, contributing, therefore, to the normalization of autonomic control of the circulation.

B-03 | Potential of mesenchymal stem cells (MSCs) in the tissue regeneration process after revascularization in a renal artery stenosis model

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Introduction: Renovascular hypertension (RVH) is frequently caused by partial renal artery obstruction. Aside from severe hypertension, renal artery stenosis results in chronic renal ischemia and irreversible renal tissue damage, even after restoration of renal blood flow (RBF). Revascularization results in normalization of blood pressure (BP) and improvement of renal function; but progressive loss of renal function is often observed over time. Previous studies have shown that MSCs induced stabilization of RVH and partial improvement of renal function and structure in RVH model.

Objectives: To evaluate if the association of revascularization (REV) with MSCs treatment would produce, besides BP restoration, also a more effective improvement of renal function in rat model of RVH.

Methods: RVH was induced in male Wistar rats by implanting a silver clip around the left renal artery, for reducing the RBF by 50% (2 kidneys/1 clip – 2K-1C model). After 6 weeks, REV was achieved by removing the clip when MSCs (106 cells) were injected through the caudal vein at 6th and 8th weeks. Systolic blood pressure (SBP) was measured weekly by plethysmography. Blood and urine were collected before and after 10 weeks when the animals were euthanized. The following groups were performed: SHAM, 2K-1C, 2K-1C+REV and 2K-1C+REV+MSCs.

Results: The 2K-1C animals showed progressive elevation in SBP with stabilization after the 5th week ($P < 0.05$). The hypertensive animals presented increased serum creatinine, proteinuria and urinary sodium, characterizing the RVH model with renal injury ($P < 0.05$). Revascularization progressively reduced BP until normalization at 9th week. The association with MSCs did not accelerate this process. REV also improved renal function parameters such as serum creatinine and sodium excretion; however, the association of REV with MSCs was more effective to reduce proteinuria that reached levels close to normal ($P < 0.05$) in group with REV and treated with MSCs.

Conclusion: Preliminary results point to a beneficial effect of revascularization on BP and renal function; but the association of revascularization and MSCs was more effective in improving proteinuria, indicating possible additional benefits of the combination of the 2 treatments.

B-04 | Effects of TNF-α inhibition on extracellular matrix metalloproteinases (MMP) -2 expression and vascular hypertrophy in 2-kidney and 1-clip hypertension

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Introduction: Systemic arterial hypertension is a public health problem associated with increased risk of cardiovascular disease. Matrix metalloproteinases (MMP) are endopeptidases that participate in hypertension-induced cardiovascular remodeling. Angiotensin II, a potent hypertrophic and vasoconstrictor peptide, increases MMP-2 activity and tumor necrosis factor (TNF-α) expression. In vitro studies show that TNF-α is essential for angiotensin II-induced MMP-2 expression. Pentoxifylline (PTX) is a non-selective inhibitor of phosphodiesterases indicated for peripheral vascular diseases that has also shown antiinflammatory effects, such as TNF-α inhibition and may exert cardioprotective and antihypertensive effects. However, it is still uncertain which beneficial mechanisms are involved in vascular protection after PTX treatment in hypertension.

Objective: Evaluate the effects of PTX and Etanercept (ETN, a selective TNF-α inhibitor) on 2-kidney and 1-Clip (2K1C) hypertension-induced vascular remodeling and increased MMP-2.

Methods: 2K1C and Sham rats were treated with either Vehicle, PTX (100 mg/kg daily) or ETN (1 mg/kg; three times per week). Systolic blood pressure (SBP) was measured weekly by tail-cuff plethysmography. The vascular hypertrophy was examined in the aorta sections stained with hematoxylin/eosin. Aortic MMP-2 activity and plasma TNF-α levels were evaluated by gel zymography and enzyme-linked immunosorbent assay (ELISA) techniques, respectively.

Results: The 2K1C animals showed a progressive increase in SBP reaching blood pressure levels of 195.3 ± 3.3 mm Hg at the end of the study ($P < 0.05$ vs Sham) and was accompanied by significant vascular hypertrophy ($P < 0.05$ vs Sham). PTX treatment decreases SBP (174.2 ± 4.1 mm Hg) and vascular remodeling in 2K1C animals ($P < 0.05$ vs 2R1C vehicle). Although ETN treatment did not reduce blood pressure levels (183 ± 13.8 mm Hg, $P > 0.05$), the vascular hypertrophy was significantly attenuated in 2K1C animals treated with ETN ($P < 0.05$). The increase in MMP-2 and TNF-α levels in 2K1C animals was reduced by PTX and ETN treatments ($P < 0.05$ vs vehicle 2K1C).

Conclusion: The findings of the present study show that TNF-α inhibition by PTX and ETN decreases MMP-2 and vascular remodeling in 2K1C animals. However, the antihypertensive effects of PTX are not associated with TNF-α reduction, because ETN treatment did not affect blood pressure levels in 2K1C animals.

B-05 | Three-dimensional modeling and graphic animation: Technological tools for the development and humanization of distance education for health professionals

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Introduction: Arterial hypertension affects 24.3% of the Brazilian population. Its association with metabolic disorders and target organs involvement causes socioeconomic impact and is a significant cause of mortality. Therefore, it is important to promote a continuous training of health professionals in order to ensure that the processes of prevention, diagnosis and treatment of arterial hypertension become more efficient. In this context, more recent teaching methodologies, such as distance education, are ideal for training health teams in Brazil, given the extent of its territory.

Objective: To present computer graphic resources and other pedagogic strategies used in distance education and their importance to facilitate the learning process of health professionals and students.

Methodology: Three-dimensional modeling resources and graphic computation were used in continuous training courses offered in distance modality on the diagnosis and management of arterial hypertension for medical students, physicians and Nursing, Dentistry and Physical Education professionals. The course was applied to approximately 300 public and private professionals. Anatomical 3-D representation of the heart and cardiovascular system was used. Video simulations of cardiothoracic index, *ictus cordis*, blood pressure (BP) measurement, Korotkoff sounds and graphics regarding complications of arterial hypertension were part of the material.

Discussion: Three-dimensional modeling and computer graphics resources can be used as facilitators of the learning process in courses offered by distance for healthcare professionals, by providing the opportunity to reproduce pathophysiological situations and to enable demonstration of BP measurement techniques and target organ damage. It was found that the use of these methodologies increases student adherence by providing greater agility in the learning process and by allowing a 3-D representation of anatomy, hemodynamics, cardiac conduction system, as well as visualization of specific organic functions, normal and pathological cardiovascular events.

Conclusion: In the Arterial Hypertension, Electrocardiogram and Dengue courses, the evaluation of the resources through questionnaires was positive according to the students. We consider that, when used with caution in a professional context, 3-D modeling and graphic animation are powerful teaching instruments in health care, being well accepted by students and favoring the comprehension of complex concepts.

B-06 | Heart rate variability and the use of antihypertensive in elderly served by a family health strategy

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Introduction: The implementation of antihypertensive drugs (AHD) is one of the essential measures for effective control of hypertension. However, it is important to evaluate the effectiveness of these drugs in stress test. The Six-Minute Walk Test (6MWT) is an important method that allows cardio-respiratory assessment.

Objective: To investigate the heart rate variability (HRV) in the elderly during and after the 6MWT application and the use of AHD.

Methods: Two groups performed the 6MWT; the first group (G1) used AHD and the second group (G2) that did not. HRV was analyzed by Kubios HRV Analysis software.

Results: The study included 29 elderly hypertensive patients with a mean age of 67.84 ± 6.66 years. Regarding antihypertensive drugs, 13.79% used beta blockers, 10.34% diuretics and 10.34% angiotensin receptor blockers (Losartan was the most used). G1 consisted of 14 people with a mean age of 66.91 ± 6.56 years old, covered 1087.394 ± 149.545 meters in the 6MWT; while G2 consisted of 15 people with a mean age of 65.38 ± 6.44 years, covered 1098.822 ± 142.201 meters in the 6MWT. HRV in the G1 time domain was: Mean RR 567.44 ± 89.22 m/s, STD RR 38.90 ± 42.33 m/s, Mean HR 102.72 ± 18.42 bpm, STD HR 32.75 ± 30.42 bpm, RMSSD 47.94 ± 62.14 m/s, NN50 28.4 ± 46.92 m/s, pNN50 (%) 4.45 ± 7.35, triangular HRV 3.05 ± 0.95, TNN 498.38 ± 800.74 m/s. At rest, 5 minutes after the test, Mean RR 701.25 ± 121.81 m/s, STD RR 55.56 ± 90.50 m/s, Mean HR 87.45 ± 16.43 bpm, STD HR 59.45 ± 174.56 bpm, RMSSD 67.59 ± 120.21 m/s, NN50 11.41 ± 15.87 m/s, pNN50 (%) 2.52 ± 3.70, triangular HRV 4.50 ± 1.20, TNN 637.76 ± 1234.88 m/s. G2 reached the following HRV values in the time domain: Mean RR 450.97 ± 56.50 m/s, STD RR 36.51 ± 42.54 m/s, Mean HR 124.13 ± 13.70 bpm, STD HR 87.56 ± 231.56 bpm, RMSSD 55.44 ± 56.78 m/s, NN50 66.54 ± 113.51 m/s, pNN50 (%) 8.45 ± 13.55, triangular HRV 3.94 ± 3.36, TNN 367 ± 212.38 m/s. During the 5-minute rest period after the test, the following HRV values could be recorded: Mean RR 594.99 ± 121.19 m/s, STD RR 175.64 ± 145.50 m/s, Mean HR 105.34 ± 28.33 bpm, STD HR 143.28 ± 294.73 bpm, RMSSD 170.27 ± 232.22 m/s, NN50 104.75 ± 145.54 m/s, pNN50 (%) 17.77 ± 20.54, triangular HRV 7.50 ± 4.71, TNN 1415 ± 2226.74 m/s.

Conclusions: The covered distance was similar between groups; however, there was a difference in HRV demonstrating cardiodepressive activity in the group using antihypertensive drugs during the 6MWT.

B-07 | Increased cardiac vagal modulation and sleep quality after 12 weeks of yoga video classes in association to respiratory control in hypertensive post menopause women

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Introduction: Menopause is associated to impairment of several physiological functions, like unfavorable autonomic profile by enhanced sympathetic modulation and decreased vagal tone. It leads to increased prevalence of hypertension in this population. Furthermore, losses in joint mobility and flexibility and emerging of vasomotor symptoms and sleep disorders demand both non-pharmacologic treatment among which yoga respiratory and physical exercises shall be highlighted. This study has evaluated beneficial effects of yoga or stretching (as control) associated or not to respiratory control upon autonomic profile and sleep quality in hypertensive post menopause women.

Methods: Hypertensive post menopause women have been recruited and randomized in four intervention groups as follows: (1) Yoga + respiratory control (Y+); (2) Yoga (Y); (3) Stretching + respiratory control (S+) (4) Stretching (S). Baseline and post intervention evaluations included cardiovascular autonomic responses through blood pressure and heart rate variabilities (BPV and HRV, respectively), collected by FinometerTM system and analyzed by CardioseriesTM software for time and frequency domain (spectral analysis). Sleep quality has been evaluated by Pittsburg Sleep Quality Index (PSQI). Participants attended to 12 weeks of supervised video classes (75 minutes) twice a week. Differences of baseline and post intervention values have been detected by GEE (Generalized Estimation Equation) and

ANCOVA for differences among groups, for a $P \leq 0.05$. Data are presented as mean (M) ± standard error (SE).

Results: Thirty and three participants completed the protocol, aged 59.09 ± 0.68. HF component of HRV, considered a marker of vagal modulation, increased significantly in Y+: Y+ pre 279.59±73.55 ms2/post 495.67 ± 131.20 ms2 ($P = 0.047$). Y pre 116.10 ± 27.64 ms2/post 170.60 ± 38.37 ms2 ($P = 0.139$), S+ pre 1053.88 ± 718.05 ms2 and post 427.83 ± 140.02 ms2 ($P = 0.408$) and S pre 434.25 ± 191.23 ms2/post 177.93 ± 35.41 ms2 ($P = 0.1$). PSQI has presented Y+ pre: 2.13 ± 0.12 and post: 1.52 ± 0.20 ($P = 0.005$); Y pre 1.38 ± 0.17 and post 1.61 ± 0.36 ($P = 0.591$) S+ pré 1.87 ± 0.12 and post 2.02 ± 0.01 ($P = 0.272$) and S pre 1.67 ± 0.27 and post 1.67 ± 0.27 ($P = 1$).

Conclusions: Significant increased HF of HRV and decreased PSQI in Y+ group may point to an interaction effect of physical poses and respiratory control of yoga upon vagal cardiac modulation and sleep quality in hypertensive post menopause women after 12 weeks of supervised video classes.

B-08 | Antihypertensive medication class interaction on improvements of endothelial function in hypertensive post menopause women after 12 weeks of yoga or stretching video classes

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Introduction: Hypoestrogenism of menopause exerts deleterious effects on endothelial function, and many non-pharmacological interventions are taken to improve it, like exercise training. However, current studies do not consider the interactive effects of antihypertensive medication class on Flow Mediated Dilation (FMD), gold standard evaluation of endothelial function. If these effects do exist is not yet elucidated. Thus, this study evaluated the interaction of hypertensive medication class upon endothelial function of yoga or stretching video classes for 12 weeks in hypertensive post menopause women.

Methods: Hypertensive post menopause women have been recruited and randomized in four intervention groups: (1) Yoga + respiratory control (Y+); (2) Yoga (Y); (3) Stretching + respiratory control (S+) (4) Stretching (S). Participants attended to 12 weeks of supervised video classes (75 minutes) twice a week. Endothelial function was evaluated by FMD of brachial artery through ultrasonography, analyzed by software Cardiovascular SuiteTM. Variation delta of baseline and post intervention was considered for analysis regarding medication class in current use of participants (self reported), divided in five categories: (1) None (2) Diuretics (3) Angiotensin-converting-enzyme inhibitor (ACE inhibitor) (4) Angiotensin II receptor blockers (ARBs) (5) Combination of any class. One-way ANOVA and Tukey Post hoc were taken to verify influence of medication class on FMD delta. Data are presented as Mean (M) ± Standard Deviation (SD), for a $P \leq 0.05$.

Results: Thirty and three participants completed the protocol, mean age 59.09 ± 0.68 years. 5 participants were not taking any medication, 3 participants used only diuretics, 4 participants used ACEi, 9 participants used ARBs and 12 used combination, including 3 in use of calcium channel blockers. Mean FMD has increased from 6.13 ± 1.25% to 14.16 ± 1.79% after intervention. Mean differences have been shown significant from diuretics compared to ARBs (21.34 ± 6.13%, $P = 0.014$) and to combined (17.40 ± 5.93% $P = 0.049$).

Conclusion: Though this study has not been designed to determine cause/effect relations of antihypertensive medication on endothelial function, it point to a likely interaction from diuretics and combined treatment compared to ARBs on increasing FMD in hypertensive post menopause women after 12 weeks of yoga or stretching video classes.

AREA: CASE REPORTS (CR)

CR-01 | Resistant hypertension in patient with bilateral adrenal incidentaloma

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MJSG, 40 years old, male, single, farmer, born in Araçuai-MG, referred to the cardiology office for resistant arterial hypertension (AH). Patient reports that the discovery of hypertension occurred in hospitalization for ischemic stroke 4 months earlier, starting methyldopa 2 g, nifedipine 60 mg, losartan 100 mg, hydrochlorothiazide 25 mg and simvastatin 20 mg (the drugs were gradually introduced in weeks, according to the needs of a better pressure control). The ECG performed during hospitalization revealed signs of LVH. After 1 month, he had an appointment with a primary care physician, where he reported blood pressure fluctuations; but noticing it normal at the time of the appointment, the doctor decided to remove the antihypertensive drugs, resulting in a new stroke 2 weeks later. The treatment was restarted with losartan 100 mg and atenolol 25 mg, as well as AAS 100 mg, clopidogrel 75 mg, simvastatin 20 mg and citalopram 50 mg. Laboratory tests requested by the specialist showed reduced serum potassium (K) (2.5 mEq/L.

RV: 3.5-5.1 mEq/L), which led to suspicion of a hyperaldosteronism that was confirmed by the dosages of plasma renin activity (PRA) (0.1 ng/mL/H. RV: 0.32-1.84 ng/mL/H) and aldosterone (692 ng/dL. RV: 2.5-39.2 ng/dL). Abdominal tomography revealed bilateral tumoral lesions on adrenal R (1.3 × 1.1) and L (1.7 × 1.5). The patient was referred for surgery, opting for L adrenalectomy; the criteria were the largest incidentaloma. The biopsy confirmed Conn's adenoma hypothesis. Two months later, the patient was using losartan 100 mg, methyldopa 1 g and amlodipine 10 mg with better blood pressure control (126 × 80 mm Hg) and without significant oscillation. PRA (0.2 ng/mL/H), aldosterone (2.2 ng/dL) and K (3.6 mEq/L) results showed more stable levels.

Discussion: Although it is a common cause of secondary AH, there are still difficulties with early diagnosis and management of Primary Aldosteronism (PHA). The choice's treatment is the unilateral adrenalectomy, after the catheterization of the adrenal veins with aldosterone dosages to determine where hormone overproduction occurs and differentiate APA from PAH. In regions such as Teofilo Otoni-MG, it is not an easily accessible resource, which may lead to empirical choice with higher risk of error.

Final Comments: The case highlights the need for early investigation of young patients with resistant hypertension to elucidate a possible secondary etiology and prevent the occurrence of potentially serious events, such as the stroke described here.

CR-02 | Arterial hypertension manifested in senility: An atypical evolution

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Case Presentation: Pheochromocytomas (PHEOS) are catecholamine-producing chromaffin cell tumors. Symptoms include refractory systemic arterial hypertension (RSAH), paroxysmal headache, profuse sweating, and palpitations. The tumor occurs at all ages, although it is most frequent in adulthood between the 3rd and 4th decade of life. It was observed as being more common in advanced age groups. Surgical treatment is the only definitive treatment of PHEOS. Patients not submitted to surgery have a 5-year mortality rate of approximately 44%.

Case Report: M.C.G, female, 83 years old, sedentary, recently diagnosed with hypertension (identified due to frequent 200 × 90 mm Hg hypertensive peaks at dawn, associated with palpitations, tachycardia, sweating, and pulsating headache). History of peripheral artery disease for 7 years associated with intermittent claudication. In use of Losartan 150 mg/d, Hydrochlorothiazide 25 mg/d, Bromazepam 3 mg/d, Nimesulide 50 mg/d and ASA

100 mg/d. Family history of acute myocardial infarction. On physical examination: Blood Pressure (BP) of 160/80 mm Hg in both upper limbs. Returns with laboratory tests containing Catecholamines with the following serum levels: adrenaline 178 pg/mL, noradrenaline 1987 pg/mL and dopamine 78 pg/mL; plasma free metanephrines 185 pg/mL and 24-hour urinary total metanephrines 360 μg/24 h. Other laboratory tests within the limits of normality. Thus, PHEOS was suspected. CT-scan showed an image compatible with PHEOS. Iodine-131-metaiodobenzylguanidine (MIBG) scintigraphy showed marker accumulation in the left adrenal region, compatible with the diagnostic hypothesis. Hypotensive treatment was started to block excessive catecholamine release, with Phenoxybenzamine 120 mg and Propranolol 80 mg. The patient then presented pressure control at tolerable levels. It was decided not to perform surgical treatment, maintaining drug treatment with follow-up BP measures only by preserving it at tolerably high levels of up to 140/90 mm Hg.

Discussion: Due to the advanced age and willingness of the patient, it was decided not to perform surgical therapy. Given the mortality rate found in the literature, an unfavorable evolution is expected. In addition, keeping BP levels at tolerably high limits may have other secondary short-term complications, as other pathologies.

Conclusions: Although pheochromocytoma is an uncommon cause of hypertension (about 0.1% to 0.5% of cases) it should be investigated in all patients with resistance to clinical treatment and characteristic symptomatology, due to high mortality and morbidity rates caused by this tumor.

CR-03 | Use of photobiomodulation as a co-assistant in the control of blood pressure – Case report

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Case Presentation: This is a case report whose objective was to verify the effects of low-intensity laser transcutaneous photobiomodulation in a 54-year-old female patient with systemic arterial hypertension.

Case Report: Participant IMC, female, 54 years old, divorced, with Post-Polio Syndrome and hypertension, using beta-blocker, adherent to treatment, with Morisky-Green = 4. After a verbal explanation of the study and consent to the Informed Consent Form, the patient underwent irradiation sessions at home, lasting 60 minutes, for five consecutive days over two months, totaling fifteen sessions interspersed in three cycles, with a break of twenty days between each. A red laser with 360 J per session with transcutaneous application over the radial artery was used. Systolic (SBP) and diastolic (DBP) blood pressure as well as heart rate (HR) were monitored before, during and after the sessions. There was a reduction in SBP from 129 mm Hg to 96 mm Hg, while in DBP the reduction was from

77 mm Hg to 62 mm Hg between the beginning of the 1st cycle and the end of the 3rd cycle. In this same interval, the HR value decreased from 102 to 65 beats per minute, a fact that deserves attention because the patient maintained standards above 100 beats per minute, besides the beta-blocker suspension (under medical prescription) that was necessary at the end of the procedure proposed therapy.

Discussion: Photobiomodulation is a technique increasingly used by many areas of health. Its use is generally employed for tissue repair, being beneficial in accelerating scar, inflammation and pain processes. Some studies show that photobiomodulation also promotes hypotensive effects on blood pressure, but there is a gap in clinical studies with a high level of evidence. Considered as one of the most important non-pharmacological therapeutic advances today, the technique can enable efficient antihypertensive treatment.

Conclusions: The use of low-intensity laser applied transcutaneously promoted modulating therapeutic effects, reducing blood pressure and heart rate in this patient.

CR-04 | Secondary hypertension in a patient with primary hyperaldosteronism, acromegaly and renal tumors: Case report of a rare association

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Case Presentation: Despite previous reports of the association of primary hyperaldosteronism (PHA) with other endocrine tumors, its association with acromegaly has been described in rare case reports. The association of triad acromegaly, hyperaldosteronism and renal tumors have not been described in the literature.

Case Report: A 54-year-old male patient has reported difficult-to-control systemic arterial hypertension (SAH) for 18 years. During the investigation of secondary hypertension, computed tomography showed a renal tumor measuring 6.0 × 5.0 × 4.5 cm in the middle third of the right kidney and several nodules in the upper pole of the left kidney, the largest being 9.0 cm and the smallest 6.5 cm (Bosniak III). Right partial nephrectomy was performed, followed by a new radical left nephrectomy two months after the first procedure. The pathological anatomy was compatible with papillary renal cell carcinoma. After surgical procedures, the patient maintained inadequate hypertension control, in addition to hypokalemia (2.9 mmol/L). Cortisol profile, urinary catecholamine and metanephrine dosages were within normal limits. However, aldosterone and plasma renin dosages were altered: aldosterone, 21.8 ng/dL; renin, 0.4 ng/mL/h; with aldosterone/plasma renin ratio equal to 54. Diagnosed PHA, due to adrenal adenoma, was confirmed by the non-suppression

of aldosterone in the saline overload test, and adrenal tomography showing a nodule with 12 mm in the left adrenal. In a doctor's appointment, it was observed that the patient had acromegalic facies and reported increased size of hands and feet. IgF1 dosage equal to 1437 ng/mL (VR = 48 to 209 ng/mL) was requested. Magnetic resonance of sella turcica showed an image with 9 × 5 mm in the adenohypophysis compatible with pituitary microadenoma. After acromegaly was diagnosed, the patient was referred for transfenoid surgery, with satisfactory postoperative results and referred for outpatient follow-up.

Discussion: It is well established that insulin-like growth factor 1 (IgF1) plays an important role in tumor development, and that acromegalic patients have an increased risk of developing malignant tumors, but their association with renal tumors is rare. Further studies are needed to understand if GH-producing tumors stimulate the onset of primary hyperaldosteronism, and it is essential to understand the correlation between the two pathologies in hypertension in difficult-to-control.

Discussion and Conclusions: The association of triad acromegaly, hyperaldosteronism and renal tumors has not been described in the literature, justifying the importance of the present report.

CR-05 | Adhesion to antihypertensive treatment: report of outpatient follow-up

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Report: Patient male, 67, previously healthy, attended the first-aid-room symptomless. At admission, he presented blood pressure of 200/120 mm Hg, using hydrochlorothiazide 25 mg and losartan 50 mg. He was instructed to maintain medications and perform changing lifestyle. In the following medical appointment, he remained symptomless, with anxiety and mean blood pressure 190/130 mm Hg in use of medication. The case evolution demonstrated an episode of hypertensive crisis and hypercholesterolemia, being prescribed Amlodipine 5 mg and Simvastatin 20 mg. Still not reaching adequate BP, he presented weight change, with a 7 kg weight gain and reported not being able to adhere to changing lifestyle. Only when achieved the lifestyle changes does it stabilize BP and meet blood pressure goals.

Discussion: Adherence corresponds to the agreement between medical prescription and patient conduct. Publications show that 50% of hypertensive patients discontinue their medication within the first 12 months after the beginning of the treatment, while 30% take their medication but do not follow the prescribed treatment. Consequently, it is difficult to control and achieve blood pressure goals. In Brazil, studies show that there are 20% to 35% of controlled hypertensive patients. Restriction of salt intake is the main dietary device used to control the disease, followed by reduced fats and

carbohydrates consumption. Thus, it is assumed that the control of hypertension is associated with the decrease of these products and not with the consumption of protective foods. Effective changes require longitudinal care of this patient. Among the factors capable of creating greater adherence and self-care is the acceptance of the disease. For that, patients should consciously participate in the treatment process; avoiding inadequate and insufficient communication. Among the factors associated to poor adherence, forgetfulness was the main finding. The structure of the services, the turnover of the professionals, idea of controlled BP, adverse effects of medication and the asymptomatic character of the beginning of the disease were also highlighted.

Conclusion: Lifestyle changes are the main difficulty for treatment adherence. Only guidance and distribution of medication are not sufficient to guarantee accession considering the reported difficulties. Health education aims to raise the awareness of the patient for the need to change lifestyle, understand and know the treatment favoring a participatory behavior.

CR-06 | Acute effects of weight loss by dehydration on renal function in mixed martial arts (MMA)

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Currently, there is a significant growth in the world in the number of professional fighters and practitioners of Mixed Martial Arts. In order to promote greater preservation of the physical integrity of the athletes, weight categories were created; however, some fighters in the attempt of insertion into inferior categories, use the dehydration for their drastic reduction of the weight. Hypothetically, the method used may trigger some damage to the body, such as a decrease in the volume of renal blood flow. This study aims to identify the acute effects of weight loss by dehydration on kidney function in a Mixed Martial Arts fighter. The study volunteer is MLC, 34 years old, male, black, single, natural from and resident in Maceió –AL – Brazil, without metabolic diseases, with a family history of arterial hypertension. He does not use drugs or dietary supplementation. The athlete has been practicing combat sports with participation in competitions in these 3 years, with an average loss of 7 kg of dehydration a month before the fights. The signature of the Free and Informed Consent Term of the athletes was collected. Three collections were carried out: 1 month before the fight, on the official weighing day and on the day of the event. According to the data presented in the present study, in response to reduction of body weight by dehydration for insertion in a lower fighting category of around 7 kg, it was observed that the athlete presented some abnormalities during the body weight loss/gain cycle as glycosuria, non-reversible positive leukocyturia and proteinuria within 24 hours, elevated

serum creatinine (1.3 mg/dL) and urea (42 mg/dL) during the peak of dehydration (day of weighing and fighting). Blood ureic nitrogen/creatinine ratio (15.8) and creatinine clearance (126.1 mL/min) were elevated during the three moments of observation, namely 30 days pre-fight, day of weighing and fighting. Elevated creatinine clearance suggests renal damage with increased filtration rate with possible renal damage from dehydration. We are completing the analysis of a further 10 athletes, and our data suggest the need for guidance of these athletes so that the training method is less detrimental to their physical integrity.

CR-07 | Atherosclerotic renovascular hypertension associated with aortic thrombosis treated with surgical revascularization: A case report

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Case Presentation: Renovascular hypertension is a major cause of secondary arterial hypertension. The prevalence is 5% of hypertensive patients. Its main cause is atherosclerosis (90%) and has a relevant association with chronic kidney disease and cardiovascular morbidity and mortality. We present a case of a 64-year-old woman with severe complications from renovascular hypertension resulting from complete occlusion of the aorta due to atherosclerotic thrombosis.

Case Report: A 64-year-old Brazilian female smoker diagnosed with arterial hypertension and a previous history of endovascular aortic aneurysm surgery. At the beginning of the follow-up, she had controlled blood pressure levels and preserved renal function, with renal ultrasonography revealing kidney asymmetry and no right Doppler flow. About thirty months after diagnosis, the patient presented uncontrolled hypertension and was admitted to the emergency unit with acute kidney injury and acute hypertensive pulmonary edema requiring renal replacement therapy. Angiotomography was performed revealing complete occlusion of the bifurcated aortic stent graft, with progression of arterial thrombus from the segment below the superior mesenteric artery to the bilateral iliac arteries, associated with acute involvement of the left renal artery.

After cardiovascular risk assessment, she underwent surgical revascularization (anastomosis of the superior mesenteric artery and left renal artery), progressing to complete recovery of renal function and blood pressure control.

Conclusion and Discussion: Atherosclerotic disease is a major cause of renovascular hypertension and should be remembered in patients with risk factors such as smoking and dyslipidemia. Treatment should be considered when there is a rapid loss of renal function, acute lung edema and difficulty in blood pressure control. Endovascular revascularization or conventional surgery is the option of choice. In the present case, the conventional surgical technique was the best

therapeutic alternative, achieving a successful outcome in renal prognosis and quality of life.

CR-08 | Secondary arterial hypertension? A diagnostic and therapeutic puzzle

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Case Presentation: Secondary Systemic Arterial Hypertension (SSAH) is commonly caused by chronic renal parenchymal disease (CRPD), or due to renal insufficiency, kidney transplantation, glomerulonephritis, drug-induced kidney disorders and polycystic kidney disease. The mechanisms involved are high salt intake, Renin-Angiotensin-Aldosterone System stimulated, vasodilators produced by the kidneys, high levels of endothelin, increased atrial natriuretic peptide and nitric oxide synthesis inhibitors.

Case Report: JCS, 54, male, has had refractory systemic arterial hypertension (RSAH) for 8 years, dyslipidemia, gouty arthritis, stage 3B chronic kidney disease, prediabetes and has presented two previous acute myocardial infarctions. The patient started hypertension treatment with progressive prescription of anti-hypertensive drugs without blood pressure control. Complains palpitations during rest, chest pain, dizziness, and headaches, besides hypertensive peaks (260 × 180 mm Hg) requiring emergency care. In use of Propatylnitrate 20 mg/d, Hydralazine 150 mg/d, Clonidine 0.600 mg/d, Carvedilol 25 mg/d, Amlodipine 10 mg/d, Indapamide 1.5 mg/d, Spironolactone 50 mg/d, ASA 100 mg/d, Rosuvastatin 10 mg/d, Allopurinol 300 mg/d. On echocardiogram: concentric hypertrophy and left ventricular diastolic dysfunction (grade 1). CT-scan: Aortic atheromatosis and bifurcation. Were discarded as diagnosis: obstructive sleep apnea, primary hyperaldosteronism, renovascular disease, aortic coarctation, Cushing's syndrome, pheochromocytoma, acromegaly, hypo/hyperthyroidism. Therefore, SSAH by CRPD was suspected, also due to complaints of muscle fatigue and the following results: creatinine 1.9 mg/dL, urea 56.0 mg/dL, glomerular filtration rate 39.46 (MDRD GFR)/39.1 (CKD-EPI), albumin-creatinine ratio 1388.7, renal ultrasound with bilateral chronic nephropathy, small bilateral calculi and normal renal Doppler flowmetry, as well as urine protein 500 mg/dL.

Discussion: Important strategies in the treatment of SSAH by CRPD are sodium, protein, phosphate, potassium, cholesterol and alcohol restriction, besides smoking cessation, increased calcium intake and physical activity. Diuretics and dialysis are also effective. In addition, strict control of BP levels is critical to restrain disease progression. In this case, the patient's pharmacological management is optimized,

but there is no BP control. Therefore, poor medication adherence or associated pathologies need to be investigated.

Discussion and Conclusion: The reported case demonstrates the distance between reality in the therapeutic management of Secondary Systemic Arterial Hypertension (SSAH) and the medical conduct proposed by the literature. Where even with the strengthening of the diagnostic hypothesis of renal parenchymal disease, after reviewing and eliminating of other differential diagnoses; treatment was optimized according to the literature, but the patient still presented refractory high blood pressure levels. Thus, the incognita of the lack of control of blood pressure levels in SSAH, permeating other criteria such as poor pharmacological treatment adherence and other associated comorbidities.

CR-09 | Acute coronary syndrome as an atypical presentation of pheochromocytoma

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Case Presentation: In this case report, we demonstrate that Pheochromocytoma, a rare tumor, may be manifested as an atypical case of acute coronary syndrome with non-obstructive coronary disease

Case Report: We present a 48 years old, female patient, with past medical history of giant cells bone tumor and early diagnosed hypertension. She was admitted to the Emergency Room with severe chest pain irradiating to the back and cervical region during physiotherapy session associated with nausea, dyspnea and cyanoses, the symptoms lasted for about 30 min. Initial assessment showed sinusal tachycardia, diffuse ventricular repolarization alteration, inverted T waves in lateral leads and left ventricular hypertrophy in the EKG. Angiotomography was negative for pulmonary thromboembolism. As troponin levels were elevated and ascending, the hypothesis of acute coronary syndrome without ST elevation was made. While waiting for coronary angiography a new crisis of severe chest pain, cyanoses, dyspnea, tachycardia and hypertension happened. The patient was immediately directed to the catheterization laboratory which showed no severe obstruction of the coronary arteries, proceeding to renal arteries catheterization for evaluation due to the hypothesis of renal artery stenosis leading to recurrent acute pulmonary edema. In the topography of the adrenal glands, bilateral well-vascularized masses were found, with a subsequent analysis of high levels of metanephrines and catecholamines in urine and MRI showing a hyper signal in T2-weighted images in the masses. Thus, the diagnoses of bilateral pheochromocytoma were made and the

patient was submitted to surgery with confirmation by microscopic evaluation

Discussion: Pheochromocytoma is a tumor of chromaffin cells, which produces excess catecholamines. Its annual incidence is 0.8 per 100 000 person-years; however, in the hypertensive group, this rate is 0.5%. The classic symptoms are headache, palpitations, sweating, anxiety, emesis and hypertension; nevertheless, it can also manifest as a dramatic presentation with left ventricular hypertrophic, ischemic disease, conduction disturbances, malign ventricular arrhythmias and shock, besides catecholamine-induced cardiomyopathy. In 95% the location is intra-abdominal and only 10% are bilateral.

Conclusion: ACS is one of the main causes of hospitalization in large hospital centers and the atherosclerotic disease is its most common cause. By presenting this case we emphasized the possibility of ACS as an atypical manifestation of pheochromocytoma.

Key Words: Pheochromocytoma; Acute Coronary Syndrome

CR-10 | The importance of multiprofessional team in hospital care of hypertensive patient with multiple comorbidities: Case report

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Introduction: Multiprofessional care provides patients wide information about their health condition, motivating them to better adhere to treatment. This care requires knowledge by team members about the action of each one and is important to respect the limits and specificities of each profession. The nurse must be able to integrate nursing care with the actions of other health professionals with ethical and social commitment. Thus, the objective of the report was to describe the team's care for a hypertensive patient with comorbidities, admitted to a cardiology hospital, from the perspective of nursing residents.

Case Presentation: Woman, 21 years old, with resistant hypertension, chronic kidney disease under dialysis, type 1 diabetes, with previous transtibial amputation of the right lower limb and peripheral venous thromboembolism; equine foot with injury and decreased sensitivity, hospitalized for endocarditis, isolated from contact due to resistant bacteria, with a profile suggestive of poor treatment adherence. Upon admission, the patient had been inserted a central catheter into the upper limb, a catheter for hemodialysis into the femoral vein, and continuous oxygen therapy. She presented alterations in the sleep-wake cycle, and signs of depression and previous self-mutilation, requiring high dependency care according to Fugulin scale.

Discussion: In multi-professional care: (a) psychologist aimed to strengthen coping with the condition in order to contribute for improvement of the treatment adherence; (b) physiotherapist evidenced the need for motor rehabilitation in bed due to the presence of a catheter for hemodialysis into the femoral region; (c) nutritionist acted with dietary adjustments to control comorbidities; (d) pharmaceutics performed medication conciliation with the physician team; (e) social worker detected social/economic needs, requesting help during hospitalization. Nurses created an integration in order to implement health interventions and provide education towards self-care and enabled the presence of a companion due to the current clinical condition and psychosocial antecedents. The patient evolved with clinical improvement and hospital discharge, with continuous hemodialysis, the need for specialized monitoring for rehabilitation, and strict control of blood pressure.

Conclusion: The multi-professional approach had a positive impact on the treatment of patients with severe hypertension and multiple comorbidities, improving connection, social needs, and family participation.

CR-11 | Arterial hypertension in children: An unusual diagnosis

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Case Presentation: Aortic coarctation is a congenital anomaly in which there is a narrowing aortic artery segment, reduction in the lumen of the vessel wall, elevation of blood pressure (BP) in the upper limbs and lower blood pressure in the lower limbs. Thus, it is one of the causes of secondary arterial hypertension (SAH), but it is rare and accounts for less than 1% of all cases of arterial hypertension.

Case Report: Patient E.R.S.M, male, 4 years old, goes to a pediatric consultation complaining of muscle fatigue after physical exercise 3 months ago. Routine BP measurement obtained 200 × 120 mm Hg in the upper left limb, 210 × 120 mm Hg in the upper right limb and 100 × 70 mm Hg in both lower limbs, in addition to bilateral low-amplitude femoral pulses and audible systolic murmur in the aortic focus. The patient has no previous pathologies nor a family history of hypertension. Given this, arterial hypertension of probable secondary etiology was suspected, the first hypothesis being aortic coarctation. Complete blood count, *kidney function tests*, electrolytes, lipid profile, serum uric acid, fasting blood glucose test, routine urinalysis, urine culture, fundoscopy and renal Doppler ultrasound were normal. Chest X-ray, EKG, and Doppler echocardiography presented confirmatory signs of the hypothesis. Pharmacological treatment with Captopril 50 mg/d was started and an appointment was

made with the surgical team for correction of the coarctation. After 3 months postoperatively, BP monitoring was requested, which revealed normal BP levels without the beta-blocker prescribed in the preoperative period. Regular patient follow-up is maintained for evolution check and blood pressure monitoring.

Discussion: Thus, it is clear that although SAH by aortic coarctation in children is not common, a physical examination with BP measurement and pulse palpation is necessary so this condition does not go undiagnosed, as it is often asymptomatic. In addition, complications caused by this type of hypertension, such as heart failure, aneurysms, and brain hemorrhages are extremely serious and are risk factors for child mortality. Therefore, as it is a reversible condition, the diagnosis and treatment should be prioritized, avoiding irreversible damage. Nevertheless, even after the surgery, a reduced survival rate is expected due to the risk of aneurysm and recurrence of coarctation.

Discussion and Conclusions: Arterial hypertension caused by aortic coarctation, although not common, represents a pathology of severe prognosis because most of the time it is diagnosed late. This is due to its being asymptomatic and the lack of a complete physical examination. The standard treatment should always be a surgical correction. The prognosis of patients who have undergone operation increases, but survival is still lower than that of the general population. In addition, the risk of aneurysms persists, as well as the recurrence of new coarctation cases. Along with that, the factors of prognosis and relapse are closely related to the age of surgical correction, which is best performed between the ages of 3-4 years old. Therefore, this case report aims to draw attention to the importance of performing physical examinations to diagnose the most diverse types of pathologies and prioritize early treatment.

CR-12 | Acute coronary syndrome triggered by extrinsic compression of the left coronary artery trunk due to ascending aortic aneurysm in a patient diagnosed with Behçet's disease

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Behçet's disease, a systemic vasculitis of unknown cause, affects blood vessels of all calibers and both circulations. Arterial lesions are less common than venous lesions with a prevalence of 1.5% to 3%, and aneurysms are more common than occlusion. Abdominal aorta involvement, followed by femoral artery and pulmonary arteries are the most common sites of aneurysms.

Methods: We report the case of a 21-year-old female patient with Behçet's disease who developed an unusual aneurysm in the ascending aorta. The patient underwent surgical correction using the Bentall technique and was asymptomatic until the tenth month, when she was readmitted for acute coronary syndrome.

Results: The patient was admitted to the emergency unit and reported typical chest pain 12 hours ago, with dynamic ST alteration from V2 to V6 on the electrocardiogram, with a positive enzymatic curve. The patient underwent coronary angiography showing large dilation of the ascending aorta (88 × 93 mm) with significant extrinsic compression of the left coronary trunk. Chest CT angiography showed ascending aortic aneurysm without dissection signs. She was referred for emergency cardiac surgery and a valve tube with a metal prosthesis was performed. Evolved well postoperatively, being discharged after 7 days of hospitalization.

Conclusions: Our case shows an uncommon localization of ascending aortic involvement in Behçet's disease, which evolved with early recurrence after surgical correction. Combined with this, the clinical presentation draws attention because it manifests as an acute coronary syndrome, triggered by extrinsic compression of the left coronary artery trunk by the large aneurysm.

CR-13 | Assistance of hypertensive nursing: Educative practices developed to primary care

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Case Presentation: The present research aims to describe the experience of educational practice in a Basic Health Unit (BHU) with hypertensive patients, in order to stimulate a knowledge-based through the institutional bonds between teaching/healthy/society during academy education. This is an experience report, originated from the practice of 4th period undergraduates' students of Nursing Course of Fluminense Federal University (UFF), during their first academic year of 2019 about implementation of educations practices in the Hyperdia Program. The study scenario was a BHU, in Niterói City, Rio de Janeiro – Brazil. The education practices were initially developed for nursing academics during their theoretical-practical activities in Nursing Fundamentals and Administration of UFF/RJ discipline. The experience emerged after performing educational dynamics with hypertensive patients who were waiting for health care in the BHU's ambulatory. Therefore, the educational actions were developed weekly with the co-participation of the nursing staff, teachers and discipline's academics. The first meeting had as goals: to clarify the patients about the activity to be developed, carry out the survey on the themes to be discussed, define the dynamics and teaching strategies and set the dates for the activities. So, the themes and dynamics considered most relevant to the group

were selected by the nursing team. Among the chosen themes are: self-medication, lifestyle, healthy diet, leisure, recreational activities, home control of systemic arterial hypertension (SAH), self-care, exercises and learn more about hypertension control and treatment.

Discussion: After five meetings in the waiting room, patients evaluated the educational activities. All hypertensive individuals who actively participated in more than three educational meetings stated that the activity was positive. Most highlighted significant changes in lifestyle, emphasized the meeting's importance to clarify doubts and learn more about control and treatment, which made it easier to manage their treatment. It was observed that patients started to value the self-care practice, positively managing their treatment with actions related to blood pressure home control, better adequacy of drug and non-drug therapy regimen, insertion of physical activities in the routine and change the way of facing life.

Final Comments: The educational actions and practices developed by the academic students together with the health team professionals allowed to promote significant changes in hypertensive patients. The initiative of health services to provide the user/community a place for continuous and systematics educational actions is essential for care to be based on the reality and daily life of patients. Based on community participation, the waiting room develops educational strategies for disease prevention and control, stimulating self-care, greater adherence to the treatment and healthier lifestyle.

only increased blood pressure after the immediate consumption of nicotine.

Objective: Considering the control of blood pressure as essential for reducing cardiovascular events and that smoking is considered a modifiable risk factor, mapping was performed in the State of São Paulo with data recorded in the FORMSUS Platform, to assess the prevalence in each Regional of Health for discussion of preventive measures.

Method: Collection of quarterly data by municipal coordinators, through responses regarding the number of smoking patients within the age group 18-59 years attended at accredited SUS units, who had self-reported hypertension.

Results: For the comparative study, the FORMSUS collection period from May/2018 to May/2019 was used. Through analyes, we observed that the DRS IX – Marilia Regional Health Department presented the highest rate – 48.19%, while the DRSXII – Record presented the lowest state rate of 10, 44%.

Conclusion: The introduction of a treatment information management system has shown that we can find geographical disparities in comorbidities associated with smoking, such as hypertension, and thus guide the application of preventive measures in certain regions through programs that seek to improve health. The reduction of associated risk factors to achieve WHO targets by 2030 to address no communicable chronic diseases (25% reduction).

AREA: CLINICAL (C)

C-01 | Geographical disparities observed in the treatment of hypertense smoking users of the São Paulo state smoking control program

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Introduction: Smoking is related to more than 50 diseases due to contact with more than 4720 toxic substances, of which at least 70 can cause cancer, according to the World Health Organization. Among the diseases, we highlight cardiovascular diseases that represent the major cause.

Mortality rates in Brazil, especially acute myocardial infarction and stroke. Smoking influences the prevalence of infarction through several mechanisms, including endothelial dysfunction, increased oxidation of LDL cholesterol and reduction of HDL cholesterol. Studies have shown the occurrence of coronary artery vasoconstriction and affecting the elastic properties of the arteries. However, there are no studies to confirm the result of hypertension caused by smoking,

C-02 | Evaluation of function and renal injury in hypertensive and diabetic patients in a FMU community in Cuiabá, Brazil

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The incidence of chronic kidney disease (CKD) is increasing in recent years, as well as its underlying diseases, such as hypertension (33.8%) and diabetes mellitus (DM, 28.5%). The disease is progressive and can lead to kidney failure, but its progression can be prevented or delayed. As hypertension and DM are the underlying diseases in 2/3 of patients with CKD in Brazil, this study analyzed the Electronic Records of Citizens (PEC) of all patients with these comorbidities in the FMU community, which attends a population of 4000 habitants in the Eastern region of Cuiabá, Brazil, through the Cockcroft-Gault equation and results of the tests performed in the last year of microalbuminuria and 24 hours proteinuria. The objective of this study is to evaluate the function and renal injury of patients with hypertension and type 2 DM. This is an epidemiological study with a cross-sectional and observational population-based design. The sample studied came from the PEC and the Community Health Agents (ACS) database, collecting data from patients who underwent consultation between October 2017 and October 2018. A total of 119 patients had updated values of serum creatinine, being

the composition of the sample of this study. The evaluation of patients' Glomerular Filtration Rate (GFR) values using the Crockoft-Gault equation shows that 73 have filtration values above 90 mL/min, considered an appropriate GFR value. Among patients evaluated in this sample, 61.32% had abnormal values (GFR < 90 mL/min). Elderly patients have reduced GFR values due to the natural loss of kidney function, so patients classified as stage I or II do not always have symptoms consistent with stage. Values below 60 mL/min of GFR, represented by class 3 to 5, may be related to irreversible and significant reduction of nephron content. These values were visualized in 25.21% of the study patients. Finally, glomerular filtration rate is an important predictor of chronic kidney injury, but should be associated with 24-hour microalbuminuric and/or proteinuria dosage, which are markers of renal injury. Patient compliance is essential for treatment, so that such examinations can be evaluated annually as a way of contemplating continued attention.

Results: We initially screened 248 patients. So far, 50 subjects (mean age: 54 ± 8 years old, 60% female, body mass index: 29.8 ± 4.0 kg/m^2) were included in the analysis. As expected, patients with RH took more anti-hypertensive medications than NRH but no significant differences were observed in patients with and without OSA. In patients with RH (n = 22), the presence of OSA (55%) was associated with a strong tendency towards a higher frequency of LVH (RH+OSA: 92% vs. RH-OSA: 50%, P = 0.05). This finding was not observed in patients with NRH (NRH+OSA: 31% vs. NRH-OSA: 33%, P = 1.00). Data from office BP measurements and ABPM did not show significant differences in patients with and without OSA regardless of RH status.

Conclusion: Our preliminary data suggest that the presence of OSA may contribute to higher cardiac remodeling in patients with RH.

Keywords: Obstructive Sleep Apnea, Hypertension, Target Organ Damage, Left Ventricular Hypertrophy, Blood Pressure.

C-03 | Obstructive sleep apnea is associated with higher left ventricle hypertrophy frequency in patients with resistant hypertension

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Introduction: Obstructive Sleep Apnea (OSA) is common in patients with hypertension, especially in those with Resistant Hypertension (RH). However, it is unclear whether OSA can contribute to target-organ damage (TOD) in patients with non-resistant hypertension (NRH) and in patients with RH.

Objective: To compare the presence of left ventricular hypertrophy (LVH), one of the major TOD, in patients with NRH and RH according to the presence of OSA.

Methods: We recruited consecutive cases of adult patients with NRH and RH (as defined by standardized criteria) from our Hypertension outpatient unit. To avoid potential confounders, we excluded patients with diabetes, smokers or significant chronic kidney disease (estimated glomerular filtration rate < 45 mL/min). All patients underwent sleep monitoring with portable sleep monitor (Embletta Gold®) for the diagnosis of OSA. We defined OSA by an apnea-hypopnea index (AHI) ≥ 15 events/h. The patients also performed other procedures including office blood pressure (BP), ambulatory BP monitoring (ABPM) and transthoracic echocardiography. After performing the proposed procedures, the patients were divided into four groups: patients with NRH without OSA (NRH-OSA); patients with NRH with OSA (NRH+OSA); patients with RH without OSA (RH-OSA) and patients with RH with OSA (RH+OSA). All analyses were performed without previous access to OSA and RH status. We compared the BP and echocardiograph data using analysis of variance (ANOVA).

C-04 | Knowledge of patients with systemic arterial hypertension in relation to their pathology

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Introduction: Systemic arterial hypertension (SAH) is a disease characterized by high and sustained blood pressure (BP) levels. Adherence to treatment and effectiveness of provided care depends on the individual's perception of the disease.

Objective: To identify how much hypertensive patients of a Primary Care Unit (UBSF) of Araguari – Minas Gerais know about their pathology.

Methods: This is a qualitative and quantitative cross-sectional study, conducted with the population of a UBSF of Araguari, Minas Gerais. The initial sample consisted of 91 patients with hypertension, of which 48 were included in this study. Inclusion criteria: being registered at the UBSF, having SAH, being home during data collection, agreeing with the research and having signed the free and informed consent term. To collect the data questionnaires were used, consisting of questions regarding socio-demographic aspects and questions about their knowledge of SAH, elaborated and applied by the researchers themselves. Later, the data were computed and analyzed.

Results: Among the 48 people interviewed, 54.2% were women and 45.8% were men; 18.8% of the participants were between 40 and 59 years old and 81.2% between 60 and 80 years old. In addition to that, 27.1% were alcoholics or consumed alcohol while 72.9% did not consume alcohol. Regarding smoking, 14.6% were smokers and 85.4% were non-smokers. Regarding their knowledge about what hypertension is, 25% answered to be the lack of control of BP, 10.4%

to be a heart disease, 6.2% poor adherence to drug treatment, 6.2% emotional uncontrollability, 4.2% believe it is related to lifestyle habits, and 48% could not answer. Regarding the causes of hypertension, 45.8% reported high sodium diet, 20.9% emotional factors and 33.3% could not answer.

Conclusion: According to the results, the interviewees associate their disease mainly with circulatory and cardiac alterations, poor treatment adherence, and emotional state and lifestyle habits. These data are similar to those found in the literature, which states that when the patients do not understand the pathophysiology of their disease, they begin to define it with aspects that they can assimilate and explain. It was observed that most participants could not conceptualize hypertension and cite its causes, a fact that suggests a poor orientation about the diagnosis by the health team. Given this, we realize the need to guide the population on the causes of hypertension, prevention, risk factors, and the importance of adherence to prescribed medication to prevent major complications.

C-05 | Overweight in hypertensive patients of a basic health unit of Araguari-MG

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Introduction: Systemic arterial hypertension (SAH) is a serious health problem in Brazil. Its risk factors can be divided into non-modifiable (as age, heredity and sex) or modifiable (as social habits, contraceptive use, diet and physical aspects). There is also an association of overweight and body fat distribution with cardiovascular diseases, since obesity, especially abdominal obesity, is associated with metabolic disorders.

Objective: To identify the prevalence of obesity in hypertensive patients in a primary care unit (UBSF) of Araguari – Minas Gerais.

Methods: Quantitative and qualitative cross-sectional study. Sample composed of 32 hypertensive patients (18 women and 14 men) who signed the consent form. The data were obtained through two questionnaires, created and applied by the researchers themselves, with sociodemographic and SAH questions. Vital signs, waist circumference (WC), height and weight were obtained from each individual. Then, the Body Mass Index (BMI) and WC were calculated according to the Brazilian Health Ministry criteria. The data were computed and analyzed.

Results: Of the 32 hypertensive patients, 43.8% were men and 56.2% women, aged 46 to 91. Regarding WC, it was observed that 43.8% women and 15.6% men presented high WC values; 6.2% women and 12.6% men presented adequate values; and 6.2% women and 15.6% men presented ideal WC. As for the BMI, 6.2% were underweight

male patients, 15.7% men and 15.7% women presented the ideal weight, while 21.8% men and 40.6% women presented as being overweight.

Conclusions: There was a predominance of overweight and high waist circumference in females. BMI and WC measurement are the most commonly used anthropometric measurements for overweight determination and there is a strong association between body mass and blood pressure (BP), considering that the increase in body mass contributes to BP elevation. The data obtained are in accordance with the literature analyzed. In addition, excess body fat is indicative of cardiovascular disease risk. Thus, awareness, education and nutritional follow-up work are needed for overweight individuals to improve life quality and reduce the risk of health problems.

C-06 | HEALTH EDUCATION: PREVENTION OF CARDIOVASCULAR DISEASES IN SCHOOLS

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Introduction: Cardiovascular diseases (CVD) represent the main causes of morbidity and mortality in the world. As a way to change this scenario, programs in different countries have been adopted to reduce the impact of these diseases by reducing cardiovascular risk factors. The Academic League of Cardiology from Mucuri (ALCAM) performs, among other activities, extension actions that are in line with both these programs and the new curricular guidelines of the medical courses, which have as one of the approaches prevention and health promotion.

Objectives: Provide high school students with knowledge about modifiable cardiovascular risk factors, as well as how a healthy diet and exercise contribute to the prevention of major CVD.

Methods: Lectures were given at two schools in the city of Teofilo Otoni, with an audience of 101 teenagers aged 15-19 years. The recommendations of the Ministry of Health and the World Health Organization were used, as well as a review of scientific articles on the subject. Information about the participants' satisfaction and suggestions was collected through a questionnaire based on the Likert Scale, with the following statements: (1) I had previous knowledge about the importance of healthy diet and exercise for health; (2) My knowledge on the subject has evolved; (3) The presentations were helpful to my life; (4) I would like to continue learning a little more about the topic. After reading the statements, students marked one of five options: strongly agree, agree, indifferent, strongly disagree and disagree.

Results: The answers review revealed that most students already had prior knowledge and would like to continue learning about the

importance of healthy eating and exercise. In addition, most pointed out that the interventions contributed to the evolution of knowledge on the subject and were useful for their lives.

Conclusion: It was emphasized the importance of an investment in the current times, in healthy eating and exercise, so that healthy aging is possible. The feedback demonstrates that this methodology can be an important CVD prevention tool.

C-07 | Adherence to antihypertensive drug therapy in the interior of São Paulo, Brazil

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Introduction: Systemic Arterial Hypertension (SAH) is a public health problem accountable for morbidity and mortality caused by cardiovascular diseases in Brazil and worldwide. Drug therapy is essential to decrease both morbidity and mortality, though it remains a challenge for health workers.

Objective: To identify and analyze the barriers faced by people who report themselves as hypertensive for not adhering to drug therapy.

Methods: Descriptive and cross-sectional study conducted with 213 people who report hypertension in SAH campaigns promoted in a city in the interior of São Paulo, Brazil. Data were collected through a semi-structured interview using Google Drive and the Morisky and Green questionnaire. Statistical analysis included Chi-square test and multiple correspondence analyses. The level of significance was set at 5% ($P < 0.05$).

Results: Most participants do not adhere to drug therapy (179; 84.04%). Barriers such as being over 60 years of age, having a low educational level, and/or difficulty to change life habits and take medications are directed linked to non-adherence to the pharmacological treatment.

Conclusion: Antihypertensive drug therapy is a complex and multifactorial process that requires special attention from a multidisciplinary health team. These findings can support interventions among individuals who report hypertension in order to improve treatment adherence and quality of life.

C-08 | Non-controlled hypertension and the risk of developing glaucoma due to the raise of the intraocular pressure

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Introduction: Glaucoma represents one of the causes of irreversible blindness with damage to the optic nerve and gradual visual field loss due to ganglion cell degeneration. High intraocular pressure (IOP) is the number one risk factor for this area degeneration. According to epidemiological global dataset, there are 60 million people with glaucoma, of these, 8.4 million have optical neuropathy with blindness.

Objectives: Investigation of the intraocular damages of glaucoma due to a rise of the IOP in the Systemic Arterial Hypertension (SAH).

Method: The information gathering has been made from indexed journals in PUBMED, COCHRANE, LILACS and SCIELO's databases. 11 metanalysis articles, bibliography reviews and clinical trials published between 1996 and 2018 and found with the descriptors: "Glaucoma", "Hipertensão Arterial Sistêmica" and "Pressão Intraocular" and their analogs in English have been included.

Results: We have seen from 8 articles with positives conclusions about the research, 1 conclusive article to the research and 1 poorly conclusive article that the knowledge about the optical nerve damage in glaucoma has enabled the development of ganglion cells monitoring techniques and expanded the understanding of the SAH as a risk factor of damage to the eyeball due to the raise of the IOP. The types of glaucoma can be distinguished as primary causes that present with features of optical neuropathy with normal or raised IOP or secondary causes like inflammation, trauma, new vascularization, spread pigmentation with raised IOP. The axonal injury of ganglion cells increases up to three times when there is an exposure of the area to a raised IOP. The raise of the IOP due to SAH can cause alterations in the optic nerve in H0, H1, H2 and H3, and the main findings were: isolated arteriolar spasms or associated with hemorrhages or exudates, in addition to stasis of the pupil. In the case of eyeball, a rise in blood pressure can cause hemorrhages in the retina and microaneurysms. Risk factors such as age and long-standing SAH can contribute to serious damages to the retina vascularization.

Conclusion: A high Systolic Arterial Pressure combined with the SAH lack of control during the nocturnal period can contribute to the worsening of the eyeball microvascular injuries. The damage, if progressive, can cause definitive vision loss, even after the IOP control.

C-09 | Obstructive sleep apnea screening in a young adult population assisted by a Family Healthcare Unit in Rio de Janeiro – LapARC study

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Introduction: Obstructive Sleep Apnea (OSA) is strongly associated with hypertension and cardiovascular (CV) risk. Nevertheless, there are few studies on OSA diagnosis and screening in younger populations that allow early interference in the natural history of this condition.

Objective: To evaluate the risk for OSA, the best screening method and its associations with cardiovascular risk factors in a young population assisted by a Family Health Strategy Unit (FHS) in Rio de Janeiro.

Methods: This cross-sectional study included adults between 20-50 years old registered in FHS/Lapa. It was approved by the local Ethics and Research Committee. Demographic and anthropometric data were registered, as well as CV risk factors. Office blood pressure (BP) was the mean of 2 consecutive measurements (Omron-705CP) while the HBPM followed the 7-day protocol. All subjects were submitted to laboratory exams (lipid and glicidic profile). Two screening questionnaires for OSA: STOP-Bang (SBQ) and Epworth Sleepiness Scale (ESS) were applied. Individuals at high risk for at least one questionnaire were submitted to full-night polysomnography.

Results: A total of 502 subjects were enrolled [male gender: 38.9%; mean age: 38.9 ± 8.8 years old], of whom 51 (10.2%) subjects were at high risk for OSA by two questionnaires; 132 (26.3%) subjects were found with high OSA risk by SBQ and 158 (31.5%) by ESS. Patients at high risk by 2 questionnaires are more frequently male, older, and obese with a high prevalence of hypertension and increased office and home BP. In multiple logistic regressions, high risk by 2 questionnaires was independently associated with male gender and obesity. High risk by SBQ was associated with male gender, obesity, increased neck circumference, and hypertension and by ESS was associated only with obesity and dyslipidemia.

Among the individuals submitted to polysomnography, 46% had a diagnosis of OSA (AHI ≥ 5/hour) and 23% of moderate to severe OSA (AHI >15/hour). The best predictor of OSA was SB, positive in 100% of individuals with moderate to severe OSA, while ESE was positive in only 20%.

Conclusion: The studied population had a high prevalence and risk for OSA. Positive ESE was associated with an adverse metabolic profile, while SBQ had a higher association with increased BP and seems to be a better predictor for moderate to severe OSA in this population.

C-10 | Inflammatory markers and refractory hypertension

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Introduction: The definition of Refractory Hypertension (RfHT) is based on failure to control Blood Pressure (BP) with the use of ≥ 5 antihypertensive drugs of different classes, including spironolactone. It is usually considered an extreme phenotype of resistant hypertension (RHT). High BP levels lead to stimulation of renin-angiotensin-aldosterone system, sympathetic hyperactivity and endothelial dysfunction with consequent increased proinflammatory cytokines production.

Objectives: Evaluation of the relationship between inflammatory markers and refractory hypertension in a large cohort of Resistant Hypertension.

Methods: This cross-sectional study evaluated 423 RHT patients (30.5% male gender, mean age 63.9 ± 10.8 years old). A total of 62 patients (14.6%) were diagnosed with RfHT. All patients were submitted to inflammatory markers dosage: TNF-alpha, MCP-1, E-selectin, and PAI-1. The sociodemographic characteristics, anthropometric measurements, and cardiovascular risk factors were recorded. Analysis of variance compared serum levels among 4 inflammatory markers and bivariate analysis compared RHT patients versus RfHT patients.

Results: Refractory hypertensives were younger, with a higher prevalence of smoking (21% vs 9.1%, $P < 0.05$), cerebrovascular disease (27.4 vs 11.6%, $P < 0.001$) and chronic kidney disease stages 4 and 5 (8.8 vs 2.8%, $P < 0.05$). They also had higher levels of albuminuria. The value of PAI-1 was higher in RfHT (126 [108-162] vs 118 [94-153], although it did not reach statistical significance. The other biomarkers evaluated did not demonstrate association with RfHT diagnosis.

Conclusion: Among the inflammatory markers evaluated, the one that most correlated with refractory hypertension was PAI-1.

C-11 | Metabolic profile of a young adult population assisted by a primary family health care unit located in Rio de Janeiro

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Introduction: Dyslipidemia, Glucose Intolerance (GI), Diabetes Mellitus (DM) and Metabolic Syndrome (MS) are metabolic conditions, often asymptomatic and related to high cardiovascular (CV) morbidity and mortality, but little investigated in younger populations. The LapARC Study is a population-based study to assess CV risk profile in young adults.

Objective: To evaluate the prevalence of dyslipidemia, DM, GI and MS in a young adult population enrolled in the Family Health Strategy (FHS) in the center of Rio de Janeiro.

Methods: Cross-sectional population study that enrolled individuals aged 20-50 years registered in an FHS unit in Rio de Janeiro. Sociodemographic, anthropometric characteristics and CV risk factors were recorded. Office blood pressure (BP) is obtained by averaging 2 measurements. All participants underwent laboratory evaluation (lipid and glycemic profile) and HBPM. Two screening

questionnaires for obstructive sleep apnea (OSA): STOP-Bang (SBQ) and Epworth Sleepiness Scale (ESS) were applied.

Results: We evaluated 575 individuals [39% male gender; average age: 39.9 ± 8.7 years old]. The most common modifiable CV risk factors were physical inactivity (43%), and obesity (25%). The prevalence of dyslipidemia was 57.6%. These individuals had a higher prevalence of male gender (42 vs 34%), MS (25 vs 4%), and high risk for OSA by ESS (35 vs 27%). A total of 91 individuals (15.8%) were diagnosed with MS. They are mostly male (52 vs 36%), older and obese (46 vs 21%), with a higher prevalence of dyslipidemia (90 vs 52%), GI (20 vs 5%), hypertension (63 vs 18%) with uncontrolled office and Home BP. They also had a high risk for OSA by SBQ and ESS (25 vs 8%).

A total of 55 (9.6%) individuals presented an altered glycemic profile. They were older with a higher prevalence of obesity (38 vs 24%), hypertension (36 vs 23%), uncontrolled HBPM (22% vs 12%) and MS (29 vs 13%) when compared to normoglycemic patients.

Conclusion: This young and apparently healthy population has an adverse metabolic profile, indicating the importance of early CV risk stratification.

C-12 | Depression in hypertensive patients submitted to coronary angiography

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Currently, there is little data concerning depressive disorders in hypertensive cardiopathy, even if they increase morbimortality in these patients. Studies suggest that between 31 to 45% of patients with stable coronary artery disease, unstable angina (UA) or acute myocardial infarction (AMI) display clinically significant symptoms. Analyzing the prevalence of greater depressive disorders in hypertensive patients admitted with com acute coronary symptom (ACS) after having undergone cardiac catheterization in a hemodynamic service in southern Brazil. We conducted a descriptive study of cross-section with accidental non-probability sampling with the patients admitted for ischemic heart disease in a highly complex cardiovascular hospital in the northeastern region of Rio Grande do Sul, Brazil. All patients interned with arterial hypertension and with SCASSST or owing to SCACSST in the aforementioned hospital from the period June to August 2018 were included in the study. The patients' records, and later an interview with application of the Patient Health Questionnaire 2 (PHQ-2), an instrument recommended by the American Heart Association for investigating depression in patients with heart disease, were analyzed. The study was approved by the General Hospital of Caxias do Sul's ethics committee. SPSS v. 22 was utilized for obtaining descriptive statistics of frequency. Depressive disorders are quite prevalent in patients with cardiopathy and even raise morbimortality in patients. Studies indicate that between 31 and 45% of patients with stable coronary artery disease,

unstable angina (UA) or AMI showed clinically significant symptoms. The study sample comprised 67 patients admitted with arterial hypertension, of both sexes, and age ranging from de 20 to 90 years, with an average age of 61.3 years (±13.46). As to the cause of hospitalization, 51 (57.3%) patients were hospitalized due to SCASSST and 38 (42.7%) due to SCACSST. About 25 (37.3%) patients scored three or more points on the PHQ-2, which would suggest a greater diagnosis of depressive disorder. In conclusion, depression is a pathology present in cardiac patients, hence one must use triage methods for appropriate diagnosis of illness, seeing as how it impacts upon quality of life and morbimortality. More studies are necessary for improving the understanding of the pathology among this population.

C-13 | White-coat and masked hypertension diagnoses in chronic kidney disease

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Study Purpose: White-coat hypertension (WCH) and Masked Hypertension (MH) are clinical conditions particularly frequent in Chronic Kidney Disease (CKD). Decide which ABPM (Ambulatory Blood Pressure Measurement) information should be used on their definitions are few studied to CKD patients. Thus, this study aims to analyze which ABPM criteria should be used on MH and WCH diagnoses in CKD patients.

Methods: A longitudinal and retrospective study in non-dialysis CKD patients underwent ABPM examination between 01/27/2004 and 02/16/2012. The following time was categorized to be from the exam realization to January/2014. The two WCH definitions tested were: (1) office BPP ≥ 140/90 mm Hg and daytime ABPM BP <135/85 mm Hg (old criterion); (2) office BP ≥ 140/90 mm Hg and 24 hours ABPM BP <130/80 mm Hg, daytime BP <135/85 mm Hg and nighttime BP <120/70 mm Hg (new criterion). The two MH definitions tested were: (1) office BP <140/90 mm Hg and daytime ABPM BP ≥ 135/85 mm Hg (old criterion). (2) office BP <140/90 mm Hg and 24 hours ABPM BP h ≥ 130/80 mm Hg or daytime BP ≥ 135/85 mm Hg or nighttime BP ≥ 120/70 mm Hg (new criterion). Cox regression was performed. Cardiovascular mortality was primary outcome and all-cause mortality was second outcome. The two definitions predictive capacity was compared, regarding both WCH and MH. Cox analysis was adjusted to the following confounding variables: glomerular filtration rate, age, diabetes mellitus, and active smoking.

Results: 367 patients were studied. The differentiation between real hypertension and WCH was made by the old criterion (average daytime BP), as it was the only one to predict all-cause mortality (HR: 3.730; IC 95%: 1.068–13.029; P = 0.039). Now, comparing the two criteria to distinguish normotension from MH, the old criterion was the only one to predict cardiovascular mortality on a statistic basis

(HR: 7.641; IC 95%: 1.277–45.738; P = 0.026). The presented statistics were adjusted to confounding variables.

Conclusions: MH and WCH definitions based exclusively on daytime BP values (old criterion) were able to better distinguish mortality in the studied CKD cohort.

C-14 | Prevalence of obesity and sedentary lifestyle in the patients with hypertension in the quilombola community from the Amazon

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Introduction: Systemic Arterial Hypertension (SAH) is a public health problem worldwide and it is an important risk factor for the development of cardiac and cerebrovascular diseases. In this sense, due to changes in the lifestyle of the Brazilian population in the last decades, there has been an increase in the prevalence of obesity and a sedentary lifestyle. In addition, obesity and sedentary lifestyle are considered modifiable risk factors for the development of hypertension and even cardiovascular events. Studies on the prevalence of hypertension and its risk factors in quilombola communities are scarce. However, the Ministry of Health points the greater susceptibility of the black-ancestry population to hypertension, such as quilombola. Thus, the present study aims to identify the prevalence of sedentary lifestyle and obesity in hypertensive patients in a quilombola community from the Amazon.

Methods: A cross-sectional study in 2 quilombola communities of Abaetetuba (PA, BR) – Acaraqui and Genipaúba – which includes 136 people between 18 and 89 years old. Data related to a sedentary lifestyle were collected through questionnaires with questions related to the theme. Obesity was investigated based on the body mass index (BMI) classification proposed by the World Health Organization (WHO). The blood pressure was measured and analyzed according to the seventh Brazilian Guideline of Arterial Hypertension.

Results: Of 136 participants, 59 were men (43.4%) and 77 women (56.6%). The average age was 43.5 years old. In the sample, it was found that 40 people reported hypertension (prevalence of 29.4%), being 18 men and 22 women. From 40 hypertensive participants, 23 (57.5%) were sedentary. It was also found that among the participants who reported hypertension, 37 (92.5%) were overweight, so 22 (55%) were overweight and 15 (37.5%) were obese.

Conclusion: Based on the above, a significant prevalence of hypertension can be identified in the community. Within this population affected by hypertension, it was possible to verify an important relationship with a sedentary lifestyle and overweight/obesity, which are conditions that constitute a risk factor for the development of hypertension, as well as aggravating the risk of cardiovascular diseases in these remaining populations of quilombos in the Amazon.

C-15 | Prevalence of hypertension using different criteria of ambulatory BP

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Introduction: White Coat Hypertension (WCH) is defined by an elevation of the office-based blood pressure (BP), and normal ambulatory BP (ABP), while masked hypertension (MH) is the opposite. Prevalence of WCH, MH or sustained hypertension (SH) differs depending on the chosen ambulatory blood pressure. The updated European Guideline for Ambulatory BP monitoring (ABPM) emphasizes that for the diagnosis of WCH and MH, applying all ambulatory pressures is needed.

Objective: Compare the prevalence of 4 BP categories, utilizing a standardized office-based blood pressure monitoring and 3 different criteria of ABPM, average daytime BP (DBP), 24-hour average BP (24hrsBP), and the recommendation of European Society of Hypertension (ESH-2014).

Method: 351 suspects of hypertension were included in the study, none of which were taking any antihypertensive drugs. A Microlife – BP3AC1-1PC equipment (Onbo Electronics Co., Shenzhen, China) was used for the office BP measurement, which was done in a set of 3 sequenced BP measures, guided by a trained observer. Afterward, all suspects realized 24-hour ABPM, using a Dyna-Mapa monitor (Cardios, São Paulo, Brazil). The measures from the 24-hour ABPM and office BP monitoring were taken following guidelines aiming for quality measurement. Prevalence of 4 categories of BP was calculated according to the office BP and with 3 different criteria for the ABPM: DBP, 24hrsBP and ESH-2014 (conjoined DBP, 24hrsBP and nighttime BP). For the office, BP, 140 and 90 mm Hg were the cut to define hypertension, as for the ABPM the values used were the ones from the latest European guideline. To compare the differences between the categories of BP, chi-square test and the confidence interval were applied.

Results: Data from 351 patients were analyzed. The results of prevalence, absolute value, proportion and confidence interval utilizing 24hrsBP were: MH: 46 (13%) [9-16], WCH: 46 (13%) [9-16], SH: 131

(37%) [32-42]; utilizing DBP: MH: 38 (11%) [8-14], WCH: 56 (16%) [12-20], SH: 121 (34%) [29-39]; and utilizing ESH-2014: MH: 60 (17%) [13-21], WCH: 39 (11%) [8-14], SH: 141 (40%) [35-45]. There is no statistical significance on the comparison of the prevalence for the 3 criteria.

Conclusion: This study shows that by having a standardized and precise office BP monitoring, there is no difference in the prevalence of WCH, MH, and SH, using different criteria of ambulatory BP.

C-16 | Cardiovascular diseases prevalence among harbor workers (HW) of Porto de Santos/SP

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Introduction: Labor accidents in harbor workers (HW) are common and their prevention is regulated by law. On the other hand, the prevention of related labor disease in this population is poorly studied.

Objective: Considering the high prevalence of cardiovascular diseases in Brazil, the objective of this study was to analyze the prevalence of cardiovascular diseases among HW of Porto de Santos/SP and to compare with the non-HW population of Sao Vicente City, and to propose actions or campaigns to develop and promote healthy actions.

Methods: A retrospective exploratory and descriptive study was conducted, with a quantitative approach to the data surveyed, through an interview form containing biodemographic data and physical parameters data including blood pressure, glycemia, and body mass index. 85 HW of Porto de Santos were included in an extension activity titled "Doctors in the Port of Santos". Only HW older than 18 years and performing the same function within a minimum of one were included in this study. Control group was composed of non-HW of different occupations (n = 114) older than 18 years and data were collected in the mall of Sao Vicente. The study was approved by the Ethics Board of the Universidade Metropolitana de Santos (Number 3.433.332).

Results: Hypertension was detected in 32% of the HW, whereas only 25% of the Control group was hypertensive. In addition, the prevalence of obesity was higher in the HW (39%) compared with general population (24%). The prevalence of diabetes was also greater among the HW (13%) versus Control population (7%).

Conclusion: We concluded that the prevalence of hypertension and probably the cardiovascular disease among Harbor workers is greater than in the general population of São Vicente City. Thus, preventive campaign projects with this population are necessary to encourage the improvement of lifestyle, including healthy eating, physical exercise, and medical monitoring.

C-17 | A new proposal for screening masked hypertension in young people: A machine learning approach

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Introduction: Masked hypertension (MH) occurs when there are abnormal values of blood pressure (BP) in 24-hour ambulatory BP monitoring (ABPM) and normal office-BP measurements (OBP). The prevalence of MH is high in young people and delayed its diagnosis may lead to cardiovascular damage. Given the limited availability of ABPM in the Brazilian public health network, our goal was to develop a HM screening tool using clinical and laboratory data.

Methods: A nested case-control model was used in a longitudinal cohort of births in Ribeirão Preto-SP started in 1978/1979. In 2017, a follow-up visit was made with 1775 individuals from the original cohort, of which 534 individuals underwent ABPM (DynaMapa, Cardios, Brazil), plus OBP measurement (Omron HEM-742INT) and biochemical tests. Hypertensive patients on hypotensive drugs were excluded (n = 80), as well as the presence of birth restriction (IUGR, n = 145). The machine learning technique: Linear Discriminative Analysis (LDA) was used to construct the prediction model. The diagnosis of MH was made according to the criteria of VI Brazilian ABPM Guideline (2018) with normal office BP measurements (<140 × 90 mm Hg) and altered ABPM (≥130 × 80 or 135 × 85 or 120 × 70 mm Hg for 24 hours, daytime and nighttime respectively). The groups were matched for gender and ethnicity, from which 97 MH and 97 normotensives (N) were selected. The best model found used the mean systolic OBP, serum triglyceride, total cholesterol and homocysteine levels, estimated glomerular filtration rate (eGFR, CKD-EPI 2009) and Epworth sleepiness scale. The individual risk probability of MH was calculated and a ROC curve was constructed. Data were presented as mean ± SD.

Results: The age was 38 ± 1 year, 79.9% white, with 97 cases of MH (31.4%). Systolic OBP (123 ± 1 vs. 118 ± 1 mm Hg), and triglycerides (183.5 ± 12 vs. 141 ± 9.8 mg/dL) were higher in MH, while eGFR (93.3 vs. and 86.8 mL/min) lower in MH ($P < 0.05$). Accuracy was 77% (60-88%, 95% CI), sensitivity (S) of 82.3%, specificity (E) of 72.3%, positive predictive value 70% and negative 84.2%. The area over the curve (AUC) ROC was 0.85 (0.73-0.95, 95% CI) and 42.2 cutoff (S = 80%, E = 84%).

Conclusion: The present instrument has the potential to identify young people at risk of MH based on biochemical data with high positive predictive value and may be useful to indicate ABPM for this population.

C-18 | Waist-hip ratio as the best cardiometabolic risk marker in obese young women

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Introduction: Waist circumference (WC) is one of the risk factors for metabolic syndrome and is the usual measure to estimate visceral fat increase, a factor that is strongly associated with insulin resistance and hypertension in obese individuals. Increased WC (>88 cm in women) is associated with the development of atheromatous plaques, which causes blood flow turbulence and endothelial injury, a major cause of increased blood pressure (BP). It is not known whether obese young women with increased WC, but with peripheral fat distribution, observed by waist-hip ratio (WHR), have lower insulin resistance than obese young women with increased WC and central fat distribution by WHR. Women with elevated WC have a prevalence of arterial hypertension 2.5 times higher than normal WC. On the other hand, peripheral fat is associated with lower risk due to its protective effects. It is not known whether obese young women with increased WC, but with peripheral fat distribution observed by waist-to-hip ratio (WHR), have lower insulin resistance than obese young women with increased WC, but with peripheral fat distribution, observed by the waist-hip ratio (WHR), have lower insulin resistance than obese young women with increased WC and central fat distribution by WHR.
Objective: To evaluate insulin resistance/sensitivity in obese young women without cardiometabolic risk factors and with different body fat distributions.
Methods: We studied obese young women without risk factors, divided into two groups according to the waist-to-hip ratio cutoff (WHR): Peripheral obese with WHR <0.85 (PO, n = 30, 33 ± 7 years, 33.7 ± 2.4 kg/m^2); and Central obese with WHR ≥ 0.85 (CO, n = 31, 33 ± 6 years, 33.3 ± 2.7 kg/m^2). We performed anthropometric, body composition (bioimpedance) and laboratory evaluations. Insulin resistance was assessed by the HOMA-IR index and insulin sensitivity by glucose and insulin area under the curve ratio during the oral glucose tolerance test (AUCgli/AUCins).
Results: PO and CO were similar in WC, body composition and fasting glucose (81.7 ± 10.2 vs. 83.8 ± 9.9 mg/dL, $P = 0.42$). PO had lower fasting insulin than CO (12.6 ± 6.8 vs. 17.8 ± 8.2 µU/mL, $P = 0.008$), lower insulin resistance in HOMA-IR (2.6 ± 1.6 vs. 3.7 ± 1.9; $P = 0.01$) and higher insulin sensitivity by ASCgli/ASCins ratio (2.1 ± 0.9 vs. 1.4 ± 0.7; $P = 0.001$).
Conclusion: Obese young women with central fat distribution have higher insulin resistance compared to obese young women with increased WC but with peripheral fat distribution. The measurement of WHR is an important additional marker for fat distribution-related WC measurement, which adds to the identification of health risk in this population of young women.

C-19 | Overview of the number of hospitalizations, obits and amount spent for circulatory diseases by the public and private health system

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Introduction: Diseases of the circulatory system are a high relevant subject since they affect a large portion of the population, and have a big impact on the budget of the public and private health system during hospitalizations.
Objective: Compare the number of deaths, between SIH and SIM, due to circulatory system diseases in Bahia, from 2010 to 2015. To compare the costs, number of hospitalizations and deaths by the public and private network in the same period of time.
Method: Ecological study of descriptive temporal series. Data were collected through consultation with the Hospital Information System (SIH) and Mortality Information System (SIM), made available by the Informatics Department of the Unified Health System (DATASUS). The variables collected were: Year of processing, number of deaths, age group, mortality rate, number of hospitalizations, days of stay, value of hospital services and regime.
Results: There were a total of deaths from 2010 to 2015, of 32 136 in the SIH base and 113 141 in the SIM base. Regarding the regime, it can be observed a much higher number of deaths in the public network. When the age group is analyzed, it is clear that the group that has the most hospital expenses is 60 to 69 years old.
Conclusion: The results show that circulatory system diseases have a high prevalence, providing a higher number of hospitalizations and deaths in the public system than when compared to the private system, although the amounts spent are even higher. However, there is a discrepancy in the data of the analyzed information systems (SIH and SIM).

C-20 | Stroke mortality: Comparison between two Brazilian states

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Introduction: More people die from cardiovascular disease worldwide than from any other type of disease, and stroke accounts for more than 32% of these deaths. This is a worldwide public health problem due to its high morbidity and mortality and high costs to the health system.
Objective: The present study aimed to compare stroke mortality in states of Bahia and São Paulo, Brazil, from 2008 to 2017.

Methods: We conducted a descriptive time series ecological study of hospitalizations and deaths from stroke in patients aged ≥ 20 years, registered in the states of Bahia and São Paulo, between January 2008 and December 2017. Data were obtained through consultation with the Unified Health System Hospital Information System (SIH-SUS), available from the Informatics Department of the Unified Health System (DATASUS).

Results: There were 99 319 hospitalizations for stroke in the state of Bahia and 278 273 in the state of São Paulo, with 2016 being the year with the highest notification. Most hospitalizations occurred on an urgent basis (98.6% in Bahia and 97% in São Paulo); and the predominant age group in both states was 70 to 79 years old (26.3% in Bahia and 26.2% in São Paulo), followed by 60 to 69 years in São Paulo (25.1%), and 80 years and over, in Bahia (24.4%). In Bahia, most hospitalizations occurred with female patients (51%) and in public institutions (52.4%), while in São Paulo, hospitalizations were more reported in males (53%) and in private institutions (41%). The average length of hospital stay in Bahia and São Paulo was 7.6 and 7.4 days, respectively; longer duration for hospitalizations in private hospitals (8.1 and 8.8), elective (10.9 and 9.9), and in Bahia, between 20 and 29 years (8.7) and in São Paulo over the age of 70 (7,6). A total of 17 973 deaths were reported in Bahia and 44 495 in São Paulo; with mortality rates of 18.09% and 15.98%, respectively. Mortality was higher in patients aged 80 years or older (32% in Bahia and 28.5% in São Paulo), obeying the predominant characteristics of hospitalizations in each state.

Conclusion: The number of patients requiring hospitalization due to stroke has increased; generating, in the last decade, an expense of over R$ 424 million to the states of Bahia and São Paulo. Despite the divergence between the states regarding gender and hospitalization regime, it was observed that most hospitalizations occur in elderly and urgent patients, with prolonged permanence and unfavorable outcome for patients with advanced age, evidencing the need for greater attention and expertise with the elderly population.

C-21 | Analysis of deaths number of heart failure in Bahia

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Introduction: Heart failure (HF) is a very relevant disease in the state of Bahia, due to its high death rates. HF is a syndrome that occurs as a consequence of structural and/or functional abnormalities, which promote changes in ventricular filling or ejection and cause lower cardiac output and/or elevated intracardiac pressures.

Objective: Analyze the number of deaths from heart failure in Bahia, from 2006 to 2016, observing variables of gender, age, place of occurrence and year.

Method: Ecological study of descriptive temporal series of cases of Heart Failure (HF) in the state of Bahia, from 2006 to 2016. Data were collected through consultation with the Mortality Information System (SIM). Available from the Informatics Department of the Unified Health System (DATASUS). It analyzes variables such as age, gender and place of occurrence.

Results: Between 2006 and 2016, a total of 20 966 cases of deaths from HF were observed, most of them in the hospital space. In addition, between 2010 and 2016 there was a higher number of deaths in males. And during the interval from 2006 to 2016, the number of deaths increased with increasing age.

Conclusion: It can be concluded that there is a high prevalence of heart failure deaths. This disease affects more men than women, in addition to a growing mortality rate in relation to increasing age.

C-22 | Inflammatory markers and chronic renal disease in resistant hypertension

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Background: Resistant hypertension (RHT), defined as uncontrolled office blood pressure (BP) despite the use of 3 or more antihypertensive drugs, presents high cardiovascular morbidity and mortality and high prevalence of chronic kidney disease (CKD). High BP levels and renal injury appear to be strongly associated with inflammatory biomarkers.

Objective: To evaluate the relationship between inflammatory markers and subclinical and established chronic kidney disease in a large cohort of patients with RHT.

Methods: Cross-sectional study evaluating 423 resistant hypertensives (30.5% male, median age 64.0 ± 10.8 years) submitted to an assessment of renal function (albuminuria measurement and glomerular filtration rate calculated from the CKD-EPI formula) and dosage of inflammatory markers: TNF-alpha, MCP-1, E-selectin and PAI-1. Sociodemographic characteristics, anthropometric measurements and cardiovascular risk factors were collected. We considered subclinical CKD those patients with moderately elevated albuminuria (30-300 mg/g creatinine) and/or GFR between 30 and 60 mL/min/1.73 m2 (CKD stage 3) and established CKD those with albuminuria >300 mg/g creatinine and/or GFR <30 mL/min/1.73 m^2 (CKD stage 4 or 5). Analysis of variance compared serum levels of four inflammatory markers and bivariate analysis compared patients with and without subclinical and established CKD.

Results: The prevalence of established CKD was 7.3% (31 patients) and subclinical CKD was 47% (187 patients). Patients with subclinical CKD were older and had greater arterial stiffness (higher pulse wave velocity). The values of TNF-alpha (7.1 [4.4-8.6] vs 5.1 [3.2-7.5], $P < 0.001$) and MCP-1 (284 [220-379] vs 260 [185-359], $P < 0.05$) were significantly higher in this group of patients. When analyzing

patients with established CKD, we observed that they had higher BP levels and that TNF-alpha values (7.8 [5.6-14.0] vs 5.6 [3.5-8.3], *P* < 0.05) and E-selectin (54.4 [41.2-61.3] vs 47.8 [32.0-65.3], *P* < 0.01) were significantly higher in this group.

Conclusion: Among the inflammatory markers evaluated, TNF-alpha and MCP-1 were strongly correlated with subclinical CKD, whereas those with the established disease had higher levels of TNF-alpha and E-selectin, possibly indicating that MCP-1 is an earlier marker of kidney injury in RHT.

C-23 | Inflammatory markers and obesity in resistant hypertension

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Background: Obesity is a public health problem and it is strongly associated with cardiovascular diseases, as well as difficulty in blood pressure and metabolic control in patients with resistant hypertension (RHT). Inflammation of adipose tissue in obesity seems to be related to the pathogenesis of their co-morbidities.

Objective: To evaluate the relationship between inflammatory markers and obesity in a large cohort of patients with RHT.

Methods: A cross-sectional study evaluating 423 patients with RHT (30.5% male, mean age 63.9 ± 10.8 years), and 50.8% of whom (215 patients) were obese. All patients were submitted to the measurement of inflammatory markers: TNF-alpha, MCP-1, E-selectin, and PAI-1. Sociodemographic characteristics, anthropometric measurements and cardiovascular risk factors were collected. Analysis of variance compared serum levels of 4 inflammatory markers and bivariate analysis compared obese versus non-obese.

Results: Obese patients were younger with a higher prevalence of peripheral obstructive arterial disease. They also presented higher albuminuria levels. The values of PAI-1 (123 [107-164] vs 113 [89-138], *P* < 0.001) and E-selectin (53.2 [34.2-68.6] vs 44.6 [20.8-62.5, *P* < 0.05] were significantly higher in obese patients. The other biomarkers showed no association with the diagnosis of obesity.

Conclusion: Among the markers evaluated, those associated with obesity in patients with RHT were PAI-1 (main fibrinolysis inhibitor and predictor of abdominal obesity) and E-selectin (endothelial adhesion molecules that play an important role in the development of atherosclerosis).

C-24 | Difference of arterial stiffness difference between black pre-pubertal children from Angolan and Brazil

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The black population is more likely to develop cardiovascular diseases (CVD), notably hypertension. Several studies have compared cardiovascular risk factors between blacks and whites, but little or almost nothing is known about differences between native African and Afro-descendants of different regions of the Americas. The aim of this study was to detect differences in blood pressure (BP) and arterial stiffness measured by the femoral carotid pulse wave velocity (cf-PWV) in black prepuberal children living in Africa and Brazil. A cross-sectional study in 345 children (57.7% girls) with a mean age 9.65 ± 1.15 years, with data collected in Angola (Luanda, N = 198) and Brazil (Vitória, ES, N = 147). The BP, cf-PWV and other measurements were obtained using the instruments and techniques. The cf-VOP values of the Angolan participants were higher than of Brazilians (5.75 ± 0.66 vs 5.54 ± 0.94 m/s; *P* = 0.019), even after adjusting for age, BP, body weight, uric acid, glucose, creatinine, c-HDL, c-LDL, and triglyceride. Angolan children also showed higher systolic BP (104.1 ± 8.4 vs 102.2 ± 9.4 mm Hg; *P* = 0.04) and uric acid in blood (4.1 ± 1.2 vs 3.6 ± 0.8 mg/dL; *P* < 0.0001). The Brazilians showed higher body weight (36.2 ± 12.4 vs 33.1 ± 9.7 kg; *P* < 0.01), BMI (18.56 ± 5.56 vs 17.28 ± 3.58 kg/m^2; *P* < 0.016) and waist circumference (61.7 ± 10.2 vs 58.8 ± 9.1 cm; *P* < 0.006), while age (9.66 ± 1.24 vs 9.65 ± 1.07 years, *P* = 0.945), height (138.7 ± 9.8 vs 137.4 ± 9.1 cm; *P* = 0.219) and DBP (62.3 ± 7.0 vs 63.2 ± 6.8 mm Hg; *P* = 0.256) were similar. It can be concluded that Angolan black prepuberal children present at the same age, greater arterial stiffness than their Brazilian counterparts, which could explain the higher systolic BP found in the African group and the higher propensity to develop hypertension in adulthood.

C-25 | Comparison of the prevalence of carotidea atherosclerotic disease among diabetic and non-diabetic hypertensive patients

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Introduction: Many studies showed the importance of specific risk factors in the genesis of atherosclerotic disease, such as hypertension

and hyperglycemia. These factors are well consolidated (Colhoun HM, CARDS. Lancet, 2004).

Objective: Analyze if there is a difference between the presence of atherosclerotic carotid plaque in hypertensives and diabetic-hypertensives.

Method: A cross-sectional study in 234 diabetics and non-diabetic-hypertensive patients who performed carotid bilateral Doppler ultrasound. 234 individuals attended in the Clinic's Hospital hypertension ambulatory of the Universidade Federal do Triângulo Mineiro were selected. All the individuals answered a questionnaire for demographic data, cardiovascular risk factors and personal and familiar cardiovascular disease. Weight, height and abdominal circumference were measured. The patients were divided in 2 groups: non-diabetics (group 1) and diabetics (group 2). The plaque evaluation was made according to the recommendation of the Cardiology Brazilian Society's Cardiovascular Image Department's group work (DIC – SBC) for the quantification of atherosclerotic disease in carotid and vertebral arteries using ultrasound. The general characteristics of the sample were defined calculating the absolute number and frequency (%) of women, men. The averages of age and body mass index were calculated to evaluate the significance of the differences between them. The t-test of Student was used and, between the proportions, the chi-square test.

Results: Our sample was composed by 54% of women and 58% of Caucasian. 146 non-diabetic hypertensive (62%) with medium age of 57 years-old (±13) and 88 diabetic and hypertensive with medium age of 62 years ± 10, both with mostly women. In relation to the other variables: BMI (30 × 31.6 ± 6), SBP (139 ± 19 × 144 ± 23 $P > 0.05$), DBP (88 ± 12 × 85 ± 14 $P > 0.05$), number of anti-hypertensive medication (2.1 × 2.5 ± 1 $P > 0.05$). In group 1 we found 37% of plaque carriers (n: 55) and in group 2 we found 55% (n: 49) with statistical significance ($P = 0.007$).

Conclusion: In our sample, more prevalence of carotid atherosclerotic plaque among diabetic-hypertensives ($P = 0.007$) than among the non-diabetic was evident. We suppose that hypertension associated with diabetes has a relevant association with the existence of carotid atherosclerotic disease.

C-26 | Analysis of heart rate variability and blood pressure in the 6-minute walk test (6MWT) in an hypertense and non-hypertense elderly group

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The autonomic nervous system (ANS) plays an important role in the organism by modulating blood pressure and heart rate both in regular physiological conditions as well as in pathological processes. For the cardiac autonomic function assessment, heart rate variability (HRV) has been widely used. The aim of the study was to compare HRV, systolic blood pressure (SBP) and diastolic blood pressure (DBP) in the pre-test, post-test and after 5 minutes of rest after the execution of the 6-minute walk test (6MWT) in hypertensive and non-hypertensive elderly women. This is an observational cross-sectional study in which sample was comprised of 27 females who were divided into two groups: G1: hypertensive women and G2: non-hypertensive women who underwent 6MWT with monitoring using a heart rate monitor. The studied groups were homogeneous with respect to the variables age, weight, height and body mass index (BMI). Regarding the Functional Independence Measure (FIM), both groups achieved a score that corresponded to complete independence in performing their tasks without any assistance from another person. G2 reached a greater distance in 6MWT (518.66 ± 52.72 m) compared to hypertensive women ($P = 0.002$). In both groups, the participants demonstrated an increase in the parameters assessed from pre-test to post-test, except for G2 DBP which remained with a mean value lower than the pre-test value (from 74 ± 9.66 to 72.22 ± 9.05 mm Hg). In addition, SBP after 5 minutes rest from the 6MWT in the hypertensive group (134.94 ± 16.74 mm Hg) were significantly higher compared to G2 ($P = 0.031$). It was observed that only G1 achieved a significant reduction in the average heart rate from values obtained during the 5 minutes rest after 6MWT (from 112.80 ± 17.85 to 91.63 ± 15.33 bpm). There was also a significant difference in NN50 and pNN50 at rest, these variables were significantly higher in G2 (102.77 ± 124.55 ms; $P = 0.017$ and 16.97 ± 19.54%; $P = 0.027$ respectively). Cardiac autonomic response after 6MWT showed a reduction in pNN50 and NN50 values in the hypertensive group, variables that are directly related to parasympathetic stimulation and heart rate reduction.

C-27 | Home blood pressure measurement and general practitioner multidisciplinary training as a strategy to improve hypertension control: TELE HBPM Campos do Jordão

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Introduction: Previous publications have demonstrated that home blood pressure measurement (HBPM) and general practitioners (GP)

training improved blood pressure (BP) control in hypertensive patients. We have tested the combination of both strategies in primary health care real world.

Objective: To investigate BP control in treated hypertensive patients just before and one year later the implementation of routine HBPM to access BP control and guide anti-hypertensive adjustments combined with GP multidisciplinary training.

Methods: In March 2018, we have provided training concerning hypertension guidelines to all the health care professionals (11 primary care units at Campos do Jordão – São Paulo – Brazil). At the same time we have implemented HBPM use in all these units with a total donation of 55 devices Omron HEM-7320. HBPM protocol followed Brazilian Society of Cardiology Guidelines 2018. A total of 1129 consecutive treated hypertensive patients have performed HPBM between March 2018 and May 2019. A patient has been considered as properly controlled if both office and HBPM achieved less than 140 × 90 mm Hg and 135 × 85 mm Hg respectively. Variables are described as mean and standard deviation and data were evaluated by logistic or linear regression adjusted by sex, age, body mass index (BMI) and health care unit. In those patients with HBPM repeated during study follow up, data have been compared with pair t-test and chi-square test.

Results: Sample included 34% male, mean age 57 ± 13 years and BMI 29.9 ± 5.7 kg/m^2. Time multivariate regression analysis demonstrated a progressive increase in BP controlled patients [March/2018 = 25% (CI 95% = 20%–30%), May/2019 = 39% (CI 95% = 33%–46%); P = 0.004)]. We also have founded a decrease in office systolic BP (March/2018 = 142 ± 41 mm Hg, May/2019 = 133 ± 44 mm Hg; P < 0.001) and HBPM (March/2018 = 133 ± 30 mm Hg, May/2019 = 129 ± 34 mm Hg; P = 0.009). Among all the 1129 patients, 118 have repeated HBPM at a mean time of 138 ± 87 days. In this sub-group, comparing first and second measurements, we have observed BP control (14% and 43%; P < 0.001), office systolic BP (148 ± 23 mm Hg and 135 ± 22 mm Hg; P < 0.001) and HBPM (139 ± 16 mm Hg and 129 ± 15 mm Hg; P < 0.001).

Conclusion: Home blood pressure measurement combined with general practitioners training has demonstrated a substantial improvement concerning blood pressure control among hypertensive patients in a low incoming country primary health care.

C-28 | High prevalence of masked hypertension in young adults associated with increased pulse wave velocity: A birth cohort analysis in the city of Ribeirão Preto 1978/1979

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Introduction: Masked hypertension (MH) is defined as abnormal behavior of blood pressure (BP) in Ambulatory Blood Pressure Monitoring 24 h (ABPM) and normal office blood pressure measurements. MH has been associated with cardiovascular outcomes and target organ damage; however, its prevalence and potential damage are poorly understood in young patients.

Objective: To investigate the association between MH and pulse wave velocity (PWV), an early marker of vascular damage, in a sample of young individuals (37-38 years).

Method: A sample of 534 individuals from the birth cohort started in 1978/79 (n = 1775) in Ribeirão Preto – SP had ABPM (DynaMapa, Cardios, Brazil) and office BP measurement (MPC, OMRON HEM). -742INT), in addition to VOP evaluation (Sphygmocor- EM3, AtCor Medical, Australia). Individuals using hypotensive medication were excluded from the analysis (n = 80). ACC/AHA criterion (American College of Cardiology/ American Heart Association) 2107 was used to classify individuals into phenotypes according to the office measurements (<130 × 80 mm Hg) and the ABPM (<125 × 75, 130 × 80 and 110 × 65 mm Hg for 24 hours,

Adjusted by sex, age, BMI and health care unit
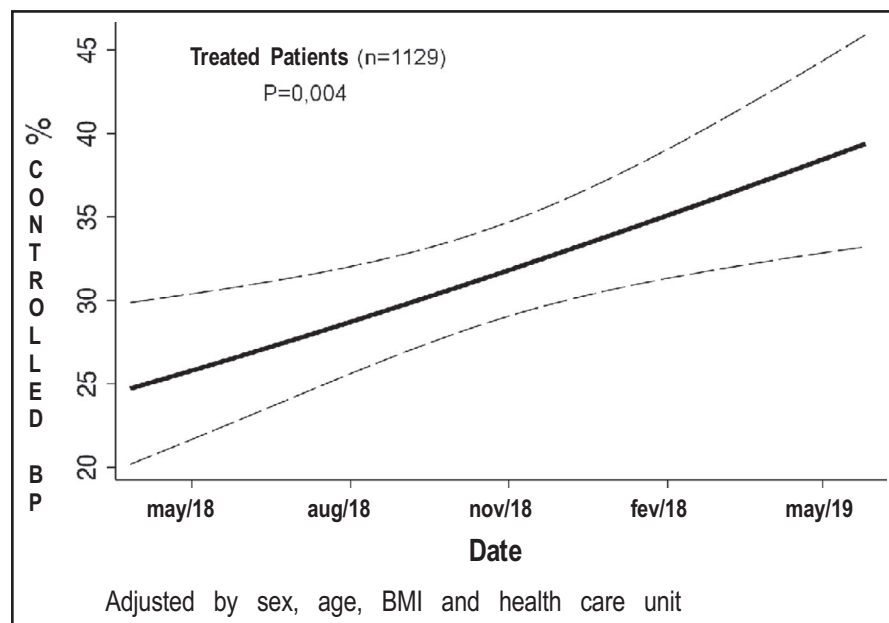
day-time, and nighttime respectively). Groups were defined as normotensive (NT) (normal BP in both measures), hypertensive (H) (abnormal BP in both measures), white coat (WC) (abnormal BP in-office measurements and normal in ABPM) and MH (normal BP in-office measurements and abnormal in ABPM). A multiple linear regression (MLR) model was used and adjusted for gender, body mass index, glycated hemoglobin and birth weight restriction (STATA v.14).

Results: The prevalence of hypertension was 49.6% in the sample of 534 individuals, with a mean age of 38 ± 1 years, 79.9% of whom were whites. Excluding patients on hypotensive medication, the frequency of NT, H, WC and MH phenotypes (n = 454) was 26%, 40.8%, 4.4% and 28.8% respectively. The PWV was higher in the H and MH groups compared to NT (7.4 ± 0.1 and 7.0 ± 0.1 vs.6.4 ± 0.1 m/s, mean ±SD, respectively). The results of the MLR adjusted for covariates showed differences between the H and MH groups vs. NT (H, β = 0.70, 95% CI 0.35–1.04, $P < 0.001$; MH: β = .47, 95% CI 0.12–0.81, $P = 0.008$).

Conclusion: The prevalence of hypertension and masked hypertension is high using the ACC/AHA criteria in young adults. Even before 40 years of age, these phenotypes are associated with increased PWV.

C-29 | Analysis of hospitalization and deaths caused by essential hypertension in Brazil and state of Mato Grosso in the last year

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Systemic Arterial Hypertension (SAH) is a multifactorial clinical condition characterized by high and sustained blood pressure (BP) levels and it is associated with metabolic disorders and functional and structural changes in target organs. Besides, it is an important risk factor for cardiovascular diseases which has been the leading cause of mortality in Brazil since the 1960s. The objective of this study is to verify hospitalizations and hospital deaths by Essential Hypertension in the last year, in Brazil and in the state of Mato Grosso. This is a retrospective, descriptive, epidemiological study, conducted from January 2018 to January 2019, using data from Hospital Information System (SIH/SUS) of the SUS Department of Informatics (DATASUS). Appraisal by the Research Ethics Committee is not required, once DATASUS is a free public database where participants are not identified. SIH/SUS reported that between January 2018 and January 2019, approximately 0.5% of hospitalizations in Brazil occurred due to essential hypertension, which corresponds to 59 490 hospitalizations by this cause. From these, 1.6% died. Regarding the state of Mato Grosso, there were 204 627 hospitalizations, 0.5% (851 patients) due to Essential Hypertension. Given this context, Mato Grosso is responsible for 1.4% hospitalizations for hypertension in Brazil. Among these 851 patients, 2% died, corresponding to 17 deaths in total. In conclusion, despite the advances in treatment of SAH and improved primary care in both the state

of Mato Grosso and Brazil, this pathology still represents a major public health problem, being considered a relevant cause of deaths and hospitalizations for decades. Besides that, even though the proportions of hospitalizations of essential hypertension are equivalent in Mato Grosso and in Brazil, in Mato Grosso the percentage of patients who evolve to death is still higher than national average. Therefore, health promotion and prevention strategies should be even more encouraged in that region.

Keywords: Essential Hypertension, Retrospective Studies, Primary Health Care, Cardiovascular Diseases, Blood Pressure.

C-30 | The importance of ambulatory blood pressure monitoring and ankle-brachial index as predictors of coronary calcification in dialysis patients

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Introduction: Cardiovascular disease is the leading cause of death in patients on peritoneal dialysis (PD). The assessment of coronary artery calcium (CAC) score can predict the incidence of acute myocardial infarction and death in these patients; however, this method is not widely available and expensive.

Objective: To verify if the altered ankle-brachial index (ABI) and the blunting of nocturnal decrease in ambulatory blood pressure monitoring (ABPM) can predict the increase in CAC score.

Methods: This is a cross-sectional study composed of adult patients prevalent in peritoneal dialysis. The CAC score was performed by cardiovascular computed tomography, and the patients were divided into two groups according to the score obtained by the Agatston method (<100 UH and ≥ 100 UH). ABI was calculated by comparing the highest systolic blood pressure of the posterior tibial arteries with the highest systolic pressure of the brachial arteries, considering as altered ABI when less than or equal to 0.9. The blunting of nocturnal descent in ABPM was defined as a mean reduction in systolic or diastolic blood pressure of less than 10% during sleep compared to wakefulness. The ROC curve was performed to evaluate the performance of ABI and nocturnal dipping in identifying CAC ≥ 100 UH. The significance level adopted was $P < 0.05$.

Results: 24 patients were included, with a mean age of 54 ± 25 years; 66% male; 45% diabetic, 66% dyslipidemic and 83% hypertensive, in 18 months of dialysis treatment. The area under the ROC curve (in predicting the presence of high coronary artery calcium score) of the ABI was 0.78; $P = 0.001$; and the nocturnal decline was 0.83; $P < 0.001$. Among the patients, 6 (25%) had CAC ≥ 100 UH, of which 4 patients (66%) had ABI <0.9 and 6 (100%) did not have adequate

nocturnal descent. When analyzed serially, the ABI and the absence of nocturnal descent exhibited 66.6% sensitivity and 100% specificity to predict CAC ≥ 100 UH.

Conclusion: Altered ABI and the absence of nocturnal dipping predict the increase in CAC score. These are available, inexpensive, and effective methods for predicting adverse cardiovascular outcomes in peritoneal dialysis patients.

C-31 | Hospitalization rate due to essential hypertension in Brazilian regions between 2014 and 2018

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Introduction: Systemic arterial hypertension (SAH) is a multifactorial chronic disease characterized by sustained pressure measurements greater or equal than 140 × 90 mm Hg. Such comorbidity has a high prevalence in Brazil and is associated with several cardiovascular and metabolic disorders. This situation results in an increase in the number of hospitalizations caused directly or indirectly by hypertension that causes significant damage to the population and, consequently, to the Brazilian health system.

Objective: Analyze the hospitalization rates for essential (primary) hypertension among the five regions of Brazil, highlighting the sex and age group most affected.

Method: This is a quantitative ecological study, which used secondary data available from the SUS Hospital Information System (SIH/SUS). We analyzed data on Essential (Primary) Hypertension in Brazil by region, from 2014 to 2018. The variables described are hospitalizations by region, gender and age group. For population data, the numbers provided by the Brazilian Institute of Geography and Statistics (IBGE) for the time in question were used.

Results: During the period analyzed, 315 833 hospitalizations for SAH were notified, and the highest hospitalization rate occurred in 2014 (3.69/10 000 inhabitants). When comparing the Brazilian regions during the proposed period, it was observed that the Northeast region had the highest hospitalization rate (21.75/10 000 inhabitants). Secondly, there is the North (19.82/10 000 inhabitants) region followed by the Midwest (13.95/10 000 inhabitants), Southeast (11.73/10 000 inhabitants) and, lastly, South (10.53/10 000 inhabitants). Regarding gender, women were the majority in all regions representing approximately 59.22% of hospitalizations, leaving about 40.78% for men. Regarding the age group, the most affected individuals were 60 years old or older (56.55%), followed by those between 30 and 59 years old (38.3%), 10 and 29 years old (4.75%) and, finally, people under 1 to 9 years old (0.37%).

Conclusion: The hospitalization rate for essential hypertension is higher in females and increases with age, and in the North and Northeast regions had prominent values. Thus, actions such as the intensification of Primary Care and awareness of health professionals can improve the established picture.

C-32 | The relation between the use of oral contraceptives and blood pressure elevation

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Introduction: Oral contraceptives represent the most effective reversible contraceptive method that consists of the combination of an estrogen and a progestogen or simply an isolated progestogen. Although they have been associated with health, such as reducing the incidence of ovarian and endometrial cancer, pelvic infections, endometriosis and ovarian cysts, it is known that steroid hormones also affect the cardiovascular system and may interfere with blood pressure levels of its users.

Objective: Analyze the studies based on the relation between oral contraceptive use and blood pressure elevation and consequently systemic arterial hypertension.

Method: This is a bibliographic descriptive study with quantitative and qualitative approach, accomplished June 2019. Data collection was performed through the LILACS and PUBMED databases, based on the health descriptors: "female contraceptives", "oral contraceptives", "combined oral contraceptives", "hormonal oral contraceptives" and "hypertension". There has been used exclusion factors of review articles and articles published more than ten years ago; also we used original studies that evaluated the effects of contraceptive use on blood pressure.

Results: Through the descriptors used, 342 articles were found, from which 20 were selected that were best related to the objective of this work. Of these, 70% (13 articles) pointed to a direct relation between contraceptive use and an elevation in blood pressure values, which may result in systemic arterial hypertension in function of the time of use and the type of contraceptive used. The other 30% (6 articles) stated that it was not possible to establish this relation between medication and blood pressure above ideal values. Contraceptives most closely related to ideal blood pressure values after use were combined with 20 μg ethinyl estradiol and 3 mg drospirenone (25% of articles).

Conclusion: The relation between oral contraceptive use and blood pressure elevation requires prescribing it according to personal history and presence of morbidity, in order to reduce both the effects on the cardiovascular system and the incidence of hypertension systemic.

C-33 | Mortality of hypertensive disease specifies pregnancy in Brazilian regions between 2012 and 2017

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Introduction: Hypertensive pregnancy disease (HDP) is the leading cause of maternal deaths in Brazil. This disorder is characterized by elevated blood pressure (BP ≥ 140 × 90 mm Hg) after the 20th week of gestation, associated with proteinuria (≥ 300 mg/24 h). In order to reduce this mortality rate, it is essential to identify the regions most affected by HDP in the country.

Objective: To present the mortality rates due to gestational hypertension in the Brazilian regions, identifying the most affected age and gestational period.

Method: This is a descriptive ecological study through data collection from DATASUS, in which information regarding mortality due to gestational hypertension was analyzed between 2012 and 2017.

Results: There were 2.111 deaths from gestational hypertension in the country in the period, which corresponded to 21% of total maternal deaths. The national mortality rate from HDP was 12 deaths per 100.000 stillbirths (LB). In relation to the regional rate, the Northeast occupied the first place (16.5/100 thousand LB), with emphasis on the state of Maranhão (25.5/100 thousand SB), whose mortality rate was the highest in all of Brazil followed by Sergipe and Piauí. The North and Midwest regions are also among the highest indices, with values of 16.4 and 12.2/100 thousand LB, respectively. The Southeast and South regions presented lower rates than the country average with 9.4 and 6.6/100 thousand SB, with relevance to the state of SC (5.1/100 thousand LB), which presented the lowest index from Brazil, followed by PR, RS and SP. Regarding the age group, it was observed that, in the North and Midwest, the highest mortality rate occurred between 20 and 29 years and in the other regions between 30 and 39 years. It was also analyzed the period in which maternal deaths occurred, considering pregnancy, childbirth and the puerperium, it was found that all regions had the highest mortality rate after delivery.

Conclusion: The mortality rate due to HDP in the Brazilian regions varies between 5.1 and 25.5/100 thousand LB. Thus, more vulnerable areas such as the Northeast, North and Midwest, need a more effective prevention policy. In addition, the study showed that the risk group of each region may vary, different from what was observed in relation to the period that most deaths occurred, whose postpartum phase was unanimous.

C-34 | Arterial involvement analyzed by pulse wave velocity in different blood pressure levels

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Introduction: The great value in estimating the cardiovascular risk of a patient is to evaluate the target organs' damage in asymptomatic individuals. Countless evidence shows the correlation of high blood pressure and target organs' asymptomatic injuries. There are few studies evaluating the arterial involvement of treated and non-treated hypertensive utilizing the brachial pulse wave velocity (bPWV).

Objective: Compare the arterial stiffness in normotensives (NT), non-treated hypertensive (NTHT), treated hypertensive (THT), and evaluate the predictors of PWVb.

Method: An equipment Microlife – BP3AC1-1PC (Onbo Electronic Co., Shenzen, China), was used to measure the CBP (conjunct blood pressure), a conjunct of three blood pressure measures (CBP) in sequence. Then, all the patients performed ambulatory blood pressure monitoring (ABPM) 24 hours, using Dyna-Mapa (Cardios, São Paulo, Brazil) monitor. Still, they performed analysis of the oscillometric pulse wave, using Mobil-O-Graph (I.E.M., Stolberg, Germany). The participants were divided into three groups according to the use of anti-hypertensive medication, and in those not treated, using the CBP and ABPM. To the comparison among the medias of the PWV was used ANOVA with the Tukey's test and ANCOVA to adjust the differences in the bPWV's medias, to age, sex, dyslipidemia (if necessary), obesity (if necessary), diabetes (if necessary), smoking (if necessary) and 24 h BP. Multiple regression was performed to evaluate the predictors of bPWV.

Results: Were analyzed data from 466 patients, 127 NT, 129 NTHT and 210 THT. The average age was NT 42 ± 1.12, NTHT 45 ± 1.12, THT 56 ± 0.88, and 24hBPs, NT $114 \pm 0.99/70 \pm 0.74$, NTHT $133 \pm 0.99/88 \pm 0.74$, and THT $123 \pm 0.78/77 \pm 0.58$. The analysis of variance showed significance differences ($P < 0.001$) of bPWV in the 3 subgroups. NT 6.7 ± 1.41, NTHT 7.5 ± 1.26, and THT 8.5 ± 1.80. After adjustment of the differences among the medias, the differences lost the significance, NT 7.6 ± 0.06, NTHT 7.8 ± 0.06, and THT 7.8 ± 0.04. The multiple regression shows that age ($P < 0.0001$), diabetes ($P = 0.032$), systolic and diastolic 24hBP ($P < 0.0001$) are predictors of bPWV.

Conclusion: The data from this study doesn't show differences in the presence of major arterial involvement in hypertensive patients comparing to normotensives. And brachial PWV is strongly influenced by the age and 24H BP.

C-35 | Reasons for the non-compliance to pharmacological treatment of hypertensive patients in a Salvador-Bahia-Brazil primary care ambulatory

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Introduction: Hypertension is one of the most important health problems in Brazil and around the world. This disease is pharmacologically treated, but there is a great challenge: the treatment adhesion. The World Health Organization addresses adhesion in a multiple dimension that includes: patient, disease, treatment and factors related to the caregiver and the health system.
Objective: Characterize the possible reasons that influence the non-compliance to pharmacological treatment of arterial hypertension in Salvador-Bahia primary care ambulatory patients.
Method: This is a cross-sectional study, realized between May and August of 2018, with sample composed of 71 hypertensive individuals treated pharmacologically, attended in a primary care ambulatory in Salvador-Bahia-Brazil. The investigation was started after the Ethical Committee analyzes, number 1.968.203 and informed consent term signature by participants. The factors that influence non-adherence to drug treatment were evaluated with questions that permeated the following questions: absence of symptoms; complexity of the therapeutic regimen; side effects of medications; and difficulty getting the medicines. These were applied to patients classified as non-adherent after applying the Morisky-Green Test (MGT). Data were submitted to descriptive analysis.
Results: Most non-adherent participants (43.6%) reported that none of the factors exposed as motivating non-adherence influenced them. However, it is worth noting that important values of non-adherence were found due to factors such as lack of money to buy the medication (30.8%), problem of obtaining medicines in the basic health unit (28.2%) and considering the treatment regimen difficult (23.1%). 12.8% of participants reported not using the drug because they had no symptoms, 7.7% said they had many side effects, 5.1% could not reach the basic health unit/popular pharmacy, 2.6% said they did not believe that medications could control your illness.
Conclusion: The lack of money, the problems to medication obtaining problems and the therapeutic regimen complexity, was relevant causes to no medication use.

C-36 | Risk factor for SAH and DM in a healthcare centre

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Introduction: Sphincter Data from the Ministry of Health points out that 8-9% of the Brazilian population has Diabetes Mellitus (DM) and approximately 25% has systemic Arterial hypertension (SAH). The pathophysiology of these diseases is composed of genetic and environmental aspects; life habits (food, related to sedentarism or smoking), are factors influencing the evolution.
Objective: The objective of the study is to analyze the frequency of the presence of sedentarism, obesity, and smoking in a population with SAH and DM.
Method: Descriptive Cross-sectional Study using data from the medical records of patients from the Areal I Health Unit, Pelotas-RS, from April/2018 to February/2019. All individuals with SAH and/or DM were included in the programmatic action and had data registered in mirror tokens. These were tabulated in the Excel 2013 program, with the realization of univariate analysis through the simple frequency.
Results: A total of 286 patients were registered. There was an adequate record in 98% related to smoking and 94% related to sedentarism; 90% with calculated body mass index (BMI). Considering the registered data, we noticed a prevalence of 20% (N = 56) of smokers, 79% (N = 212) of sedentary and 81% (N = 209) with BMI outside the target-41% (N = 106) were overweight and 40% (N = 103) obese.
Conclusion: We observed a high prevalence of patients with chronic comorbidities with indicators of inadequate life habits. Sedentarism, smoking and overweight/obesity are reasons directly related to the evolution of the pathologies; therefore, a smaller number was expected with the presence of these factors. We aim to decrease this prevalence, aiming at better control of comorbidity and less development of complications; it is believed that the science of the maleficence of these habits is paramount for change. The dialogue without judgments, aiming to understand the physical and psychological aspects, seeks to improve the quality of life. Support groups can be facilitators, in which the patient feels supported and manages to change their lifestyle with less difficulty.

C-37 | The influence of non-compliance to pharmacological treatment on blood pressure levels of hypertensive patients in a primary care ambulatory in Salvador-Bahia-Brazil

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Introduction: Arterial hypertension is a health condition associated with numerous undesirable outcomes and, therefore, needs

effective therapeutic. The non-adherence to pharmacological treatment presents high potential to uncontrolled blood pressure and produces other clinical complications, increasing the necessity of specific treatments and hospitalization, leading to overload on the health care system.

Objective: To check and compare the blood pressure levels of patients that present adherence and non-adherence to hypertensive pharmacological treatment in a population group in Salvador-Bahia-Brazil.

Method: This is a cross-sectional study, realized between May and August of 2018, with a sample composed of 71 hypertensive individuals treated pharmacologically, attended in a primary care ambulatory in Salvador-Bahia-Brazil. The investigation was started after the Ethics Committee analyzes, number 1.968.203 and informed consent term signature by participants. Blood pressure was determined at the outpatient clinic, in accordance with the recommendations of the 7th Brazilian HA Guideline. The hypertension treatment adherence was evaluated using the Morisky-Green Test and the data was submitted to descriptive analysis. Quantitative data were analyzed using blood pressure averages. The Student T-Test was applied and the statistical significance was considered when $P < 0.05$.

Results: The results show that there was not a difference between arterial systolic pressure averages of patients presenting adherence (135 mm Hg) and non-adherence to treatment (133 mm Hg) (*P*-0.543). On the other hand, was observed a significant statistical difference between arterial diastolic pressure averages when we compared adherent (76 mm Hg) and non-adherent patient averages (85 mm Hg) ($P = 0.012$).

Conclusion: The results revealed that non-compliance to hypertension pharmacological treatment is positively associated with high levels of arterial diastolic pressure. This result presents clinical relevance when considered the relationship between arterial diastolic pressure alterations and cardiovascular complications.

C-38 | ANALYSIS OF ARTERIAL STIFFNESS OBTAINED BY PULSE WAVE VELOCITY IN A POPULATION OF DIABETIC AND NON-DIABETIC HYPERTENSIVE PATIENTS

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Introduction: The arterial stiffness is an independent predictor of cardiovascular outcomes, as is myocardial infarction, stroke and kidney diseases. This process results in an increase of THE PULSE WAVE, important and trustworthy measure of arterial stiffness.

Hypertension and diabetes mellitus are associated with an increase in arterial stiffness (*Zhongjie Sun; Hypertension, 2013*).

Objective: This study compares the arterial stiffness between hypertensive diabetic and non-diabetic patients.

Methods: 189 patients were selected from an assortment of patients at a hypertension clinic, which then had their pulse wave analyzed by the oscillometric method, using the MOBIL-O-GRAPH 24 PWA equipment (IOM, Stolberg, Germany). Four measurements were made, as per the Scientific Statement from the American Heart Association (2015). This sample was composed of 112 hypertensive non-diabetic patients (group 1) and 77 hypertensive diabetic patients (group 2). The patients answered a questionnaire about demographic data, cardiovascular risk and personal and familiar cardiovascular disease. Weight, height and abdominal circumference were measured. The frequency of obesity, smoking and dyslipidemia were also measured. The arithmetic average of age, body mass index (kg/m^2) and peripheral and central blood pressure (mm Hg) were calculated.

Results: Body mass index, age, blood pressure, number of antihypertensive drugs, obesity and dyslipidemia, showed no statistically significant difference among groups. However, the average of pulse wave velocity in group 2 (9,339 m/s ± 1,698) was significantly higher than in group 1 (8,796 m/s ± 1,722), with $P = 0.03$.

Conclusion: In this sample, the values of pulse wave velocity obtained were higher in the group of hypertensive diabetic patients than in the group of non-diabetic patients. We suppose, then, that hypertension associated with diabetes has a relevant association with arterial stiffness.

C-39 | Hospitalization and mortality from cardiovascular diseases in Brazilian regions

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Introduction: Cardiovascular diseases (CVD) are the main cause of mortality in the world, being the most prevalent acute myocardial infarction (AMI), stroke and heart failure (HF). The main risk factors are behavioral and systemic arterial hypertension (SAH), which is the most significant for the occurrence of these diseases.

Objective: The present study aimed to compare cardiovascular disease mortality in Brazilian regions from 2008 to 2017.

Methods: We conducted a descriptive time-series ecological study of hospitalizations and deaths due to stroke, acute myocardial infarction and heart failure in patients aged ≥ 20 years, recorded by the Brazilian regions, between January 2008 and December 2017. Data were obtained through consultation with the Hospital Information System of the Unified Health System (SIH-SUS), made available by the Department of Informatics of the Unified Health System (DATASUS).

Results: Despite the decrease observed in the last 5 years, heart failure was the main cause of hospitalization; followed by hospitalizations for stroke and acute myocardial infarction, both on the rise. Most hospitalizations occurred as a matter of urgency in male patients over 60 years of age. The average length of hospital stays ranged from 5.3 to 8.1 days, with longer duration for AMI hospitalizations in the Northern (8.0), Northeast (7.6), Midwest (8.1) and Southeast (7.9); and by stroke in the southern region (7.0). Stroke was responsible for the highest number of deaths in the north and northeast, while heart failure was the leading cause of death in the Midwest, southeast and south. In all regions, the mortality rate was higher for patients hospitalized for stroke and AMI, being higher in female patients over 70 years.

Conclusion: The number of patients requiring hospitalization for heart failure has been reduced, although it is still the main cause of hospitalization among cardiovascular diseases. On the other hand, there is an increase in the number of hospitalizations for stroke and acute myocardial infarction, which are those with longer hospital stay and mortality rate. Most hospitalizations due to CVD occur in male, elderly and urgent patients, with unfavorable outcome for female and elderly patients.

C-40 | Prevalence of systemic arterial hypertension associated with cardiovascular risk factors in the population from a town located in northeast Fluminense region

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Introduction: Circulatory diseases are among the leading causes of death in all countries of the world. The risk factors (RF) for cardiovascular disease (CVD) are divided into: modifiable (environmental and behavioral) and non-modifiable (genetic and biological). Framingham's study confirms the importance of some factors strongly related to atherosclerosis and its clinical manifestations, such as smoking, dyslipidemia, diabetes mellitus (DM), family history, hypertension, physical inactivity, obesity, metabolic syndrome, and alcoholism. Interventions related to health promotion, prevention and control of obesity and CVD, as an incentive to the practice of physical activity, smoking cessation and nutritional education of the population, show great importance because they result in the loss of weight, plasma lipid levels, glucose and blood pressure (BP), reducing cardiovascular risk.

Objective: This study aims to quantify the number of people with hypertension and other comorbidities, who undergo treatment or not, correlating with RF and making them aware of the importance of treatment.

Methods: A non-intervention descriptive observational study was conducted in a social activity held in the town of Itaperuna/RJ. The public was randomly approached and invited to participate in the research, with questions about age, gender, ethnicity, DM, SAH, dyslipidemia, smoking and alcoholism, and then, BP, heart rate, blood glucose, body mass index and abdominal circumference were measured.

Results: In an audience of 150 people interviewed, 65.1% were female and 34.9% male, 19.5% had hypertension, in which 2.68% were not undergoing any treatment and 6% with an association between hypertension and dyslipidemia. The main RF for CVD was: family history of CVD in 59.7%, physical inactivity in 53%, overweight in 46.3%, hyperglycemia in 41.07% and DM in 8.1% of the interviewed people. Regarding the current health status and lifestyle of the participants, we have obtained data such as 37.6% alcoholics, 11.4% smokers, and 10.7% dyslipidemics.

Conclusion: The research allowed to collect data about BP during social action, relating them with RF for CVD developing; also advise on the need for medical assistance in cases of SAH detected; encourage changes in lifestyle, highlighting the risks of smoking, dyslipidemia and the need of physical activity; and answer questions that arose.

C-41 | Snoring and bad quality of sleep as a cardiovascular risk factor in a hypertensive population in a tertiary cardiology hospital

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Introduction: Hypertension is a chronic disease of multifactorial etiology associated with genetics as well as modifiable risk factors. Snoring and bad quality of sleep have been proven to impact the development of hypertension as well as reduced hours of sleep (less than 7 hours per day).

Objective: This study aims to analyze risk factors related to sleep in a population of high cardiovascular risk patients from a tertiary cardiology clinic in the south zone of Rio de Janeiro.

Method: Descriptive cross-sectional study. 259 patients with high cardiovascular risk were interviewed, the mean age was 62.8 (19-97), 59.8% male (n = 155); 53.7% considered themselves non-white. The variables used to classify high cardiovascular risk were: body mass index (BMI) 28 kg/m^2 (15-51 kg/m^2); mean blood pressure 136.4 × 79.3 mm Hg; 89.6% had hypertension, 39.7% were diabetic; 69.8% had dyslipidemia; 62.7% had previous cardiovascular disease; 59.5% had positive family history. Questionnaires were utilized with inquiries regarding sleeping habits, blood pressure measurement and anthropometry analysis. Amongst the questions about sleeping patterns, those included were: hours of sleep per night, sleep quality (considering answers such as very good, good, regular, bad and really

bad) and if the person snores or not at night. The statistical analysis was performed by the Prism 8.0 software (GraphPad).

Results: Out of the 232 hypertensive patients, 49.13% (n = 114) sleep less than 7 hours per night, 54.74% (n = 127) snore at night and 33.62% (n = 78) consider their sleep as bad or really bad. The analysis of the correlation by the Fisher test showed that the prior diagnosis of blood pressure had a positive correlation with fewer hours of sleep per night ($P = 0.0111$). No correlation was shown between the quality of sleep ($P = 0.684$) or snoring ($P = 0.5675$). When analyzing variables such as BMI and sleep, a positive correlation was found ($P < 0.0001$), showing the relationship between sleep, overweight and obesity.

Conclusion: With hypertensive patients who had a BMI >30, sleeping patterns and characteristics should always be questioned by the physician due to the relationship between reduced hours of sleep and snoring in these patients.

C-42 | Incidence of cognitive decline in hypertense and non-hypertense patients followed in a hospital reference unit

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Introduction: Hypertension is one of the most important modifiable risk factors for cerebrovascular disease, also responsible for the development of severe target organ damage. In this context, evidence demonstrates a clear association between hypertension and cognitive decline. High Systolic Blood Pressure (SBP) has been associated with lower regional and total brain volumes and reductions in brain volume over time. Consequently, hypertensive elderly, when compared to normotensive elderly, have slow responses, impaired memory, and executive function.

Objective: To evaluate and compare the incidence of cognitive decline among hypertensive and non-hypertensive elderly patients.

Methods: Analytical, observational and cross-sectional study based on the application of Mini-Mental State Examination (MMSE) to patients followed at a referral hospital unit in Aracaju-SE. The patients were hypertensive and non-hypertensive elderly whose ages were between the 7th and 9th decade of life.

Results: We evaluated 105 patients with a mean age of 69.7 ± 7 years. Among them, 87 (82.85%) had Systemic Arterial Hypertension (SAH) and 18 (17.14%) were normotensive. In addition, of all patients followed, 14 (13.33%) expressed alterations in MMSE. Of the hypertensive patients, 11 (12.64%) had altered MMSE and of those not hypertensive, 3 (16.66%) showed the same result. Of the total patients who manifested alterations in MMSE, only 3 (21.42%) did not have arterial hypertension.

Conclusion: With slight discrepancy, patients presenting HAS had a lower percentage of patients with MMSE alteration than the control group. In contrast, a significant incidence of hypertensive patients was observed among those diagnosed with cognitive decline by MMSE. Thus, the actual existence of the relationship between hypertension associated with a decline in cognitive function includes hypertension as an essential risk factor for the development of cognitive deficits.

C-43 | Smoking: A preventable risk factor for arterial hypertension and cardiovascular diseases

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Introduction: High blood pressure is a routine condition in medical practice. According to the World Health Organization (WHO) hypertension affects about one billion people worldwide. In Brazil, more than 30% of the population has this disease. Hypertension is a major risk factor for cardiovascular diseases such as acute myocardial infarction (AMI) and stroke. The connection between smoking and hypertension comes from a complex interaction between hemodynamic factors, autonomic nervous system and multiple vasoactive mediators. According to WHO, smoking habit has been growing in developing countries and decreasing in developed countries, and is higher among men than women. Active smoking is the leading preventable cause of disease and death in the world.

Objective: Highlight smoking as a preventable risk factor for hypertension and cardiovascular diseases.

Method: A bibliographic survey in Google Scholar databases, SCIELO, BVS and INCA data, totaling 23 references.

Results: The sympathetic nervous system (SNS) plays a central role in changes in blood pressure and its activation through nicotine action may contribute to chronic elevation of blood pressure by its action on the kidneys, vessel structure and baroreflex suppression. On the cardiovascular system, the action is done through adrenergic stimulation. Cholinergic receptors are activated causing increased cardiac work, endothelial dysfunction, catecholamine release and vascular hyperreactivity, thereby increasing blood pressure. Hypertensive smokers have worse cardiovascular prognosis even when treated for hypertension. Studies show that a reduction in smoking was related to a marked reduction in cardiovascular risk (CVR). It is essential to recognize smoking as a preventable disease and it's doctor's duty to provide adequate treatment for this dependence, often overlooked by clinicians and cardiologists. Smoking cessation is of paramount importance for a better prognosis of hypertensive disease and reduction of CVR.

Conclusion: The relation between smoking and high blood pressure is evident. Nicotine has numerous effects on the SNS and cardiovascular system that corroborate for an increase in blood pressure and

CVR. Smoking is a disease and a preventable risk factor for hypertension and its cessation is the main measure to be taken for a better prognosis of hypertensive disease and a reduction in CVR.

C-44 | Hypertensive crisis in the five Brazilian regions: A descriptive analysis from 2013 to 2017

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Introduction: The Hypertensive Crisis (HC) accounts for 0.45-0.59% of all emergency care, being divided into Urgency and Emergency which has as cardiocirculatory complications: acute aortic dissection, acute pulmonary edema with left ventricular failure, acute myocardial infarction, and unstable angina.

Objective: Describe the profile of hospitalizations for the treatment of HC in the five regions of the country, in the period 2013-2017, considering the variables: hospitalizations, mortality rate, and average length of stay.

Method: Descriptive observational study with data collection from the DATASUS- website (SIH/SUS) considering the variables: hospitalizations, mortality rate, and the average length of stay, for HC from 2013 to 2017 in the five regions.

Results: Regarding hospitalizations for HC treatment, in 2017, North (N) performed 7867 hospitalizations; Northeast (NE) 26.623; Southeast (SE) 21.156, South (S) 9.330, and Midwest (MW) 4.580 hospitalizations. In 2016, N performed 7.756 hospitalizations; NE 26.687; SE 22.217; S 9.189 and MW 4.554. In 2015, N performed 9.396; NE 34.212; SE 23.834; S 9.182 and MW 4.874. In 2014, N performed 11.356 hospitalizations, NE 35.478; SE 27.185; S 10.002 and MW 6.049. In 2013, N performed 11.616 hospitalizations, NE 36.813; SE 29.270; S 9.957 and MW 7.084. Regarding the mortality rate, in 2017 N obtained a rate of 1.54; NE 1.86; SE 1.55; S of 0.71 and MW of 1.38. In 2016, N had a mortality rate of 1.46; NE of 1.87; SE 1.79; South 1.11 and MW 1.43. In 2015, N obtained rate of 1.19; NE 1.58; SE 1.54; S 0.93 and MW 1.83. In 2014, N presented a rate of 1.08; NE 1.49; SE 1.69; S of 0.94 and MW of 1.14. In 2013, N had a mortality rate of 1.19; NE 1.46; SE 1.65; S of 1.09 and MW of 0.9. Regarding the average length of stay, in 2017 N obtained an average of 3.2 days; NE 3.5 days; SE of 3.3 days; S 3.1 days and MW 3.2 days. In 2016, N had an average of 3.2; NE 3.4; SE 3.4; South of 3.2 and MW 3.1. In 2015, N obtained an average of 3.1; NE 3.2; SE of 3.4; South of 3.4 and MW of 3.3. In 2014, N presented an average of 3; NE 3.2; SE 3.4; S of 3.4 and MW of 3.4. In 2013, N obtained an average of 3.1; NE 3.1; SE of 3.4; S of 3.4 and MW of 3.2.

Conclusion: Brazilian regions have significant differences in the number of hospitalizations, mortality rate, the average length of hospital stay, which in part could be justified by the socioeconomic and demographic differences that are present in the national territory.

C-45 | Comparative analysis of arterial stiffness results between two assessment methods – Dyna-ABPM'PWA versus SphygmoCor – in resistant hypertensive patients

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Introduction: Pulse wave velocity (PWV) is an important biomarker of arterial stiffness and remains the non-invasive "gold standard" method for assessing decreased aortic wall elasticity. Carotid-femoral PWV meets most criteria to qualify as a surrogate outcome for cardiovascular disease. Currently, it should be recommended for hypertensive patients and may add predictive value in cardiovascular risk assessment in patients with diabetes mellitus.

Objective: To compare the PWV results obtained by a Dyna-ABPM-PWA oscillometric method with the values observed by radial tonometry using Sphygmocor AtCor Medical equipment.

Methods: Fifty-three patients from the FAMERP Hypertension Outpatient Clinic were recruited (31F/22M) and submitted to arterial stiffness assessment using the Dyna-ABPM-PWA system (oscillometric method) through 24-hour BP monitoring and the Sphygmocor device. AtCor Medical (radial tonometry). Linear regression and Bland-Altmann test were used for statistical analysis.

Results: Comparison of PWV values recorded by Dyna-ABPM-PWA using 24-hour monitoring with those obtained by Sphygmocor showed a correlation coefficient $r = 0.60$. The Bland-Altman plot presented agreement coefficient = 0.39, precision coefficient = 0.59 and accuracy coefficient = 0.77.

Conclusion: The oscillometric method for assessing arterial stiffness with Dyna-ABPM-PWA presents good correlation and excellent accuracy compared to the results observed by the radial tonometry method recorded with the Sphygmocor AtCor system in resistant hypertensive patients.

C-46 | Reduced hours, snore and low sleep quality as cardiovascular risk factors – Cross-study in medical student

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Introduction: Studies show that sleep time and quality are risk factors (RF) for cardiovascular disease (CVD), the leading cause of death worldwide. About 60% of individuals sleep less than 6 hours/d (short sleep) and when compared to normal sleep (7-8 hours), are associated with poor quality and increases the total risk of CVD by 63%. Due to the reduced number of hours of sleep in medical students, it is justified to study the sleep quality profile of these students, as they present a possible future CVD risk profile.

Objective: Elucidate the importance of sleep recognition as a CV protective factor among medical students and to perform a descriptive analysis of the sleep hours, snoring and sleep quality of this population.

Method: A cross-sectional descriptive study conducted in 286 students from the 1st to the 4th year of medical school at a private college in Rio de Janeiro. The characteristics of the population were analyzed after the collection of anthropometric and blood pressure measurements (by an automatic device) followed by a semi-structured questionnaire about lifestyle, sleep quality and RF for CVD was completed. The average age was 20.95 years (17-57 years); 62.2% (n = 178) female; 90.9% considered white; Average BMI 23.04 kg/m^2 (16.6-33.17 kg/m^2); blood pressure 115.4 × 64.89 mm Hg. Data were analyzed by the SPSS version 21 statistical program.

Results: Regarding the hours of sleep, 88.8% of students report not achieving 8 hours of sleep per night, with 18.5% sleeping 5 hours or less and 61.2% sleeping 6 hours or less. Regarding snoring, it was present in the report of 17.8%. Regarding sleep quality, 39.2% reported "very good" and "good" sleep quality, 41.3% "fair", and 19.5% "bad" and "very poor". When questioning the possible interference of the medical faculty on sleep quality and the number of hours slept, 83.2% confirmed the presence of negative interference. When asked about the knowledge of sleep quality and number of hours as a cardiovascular RF, 97.2% demonstrated previous knowledge of this information.

Conclusion: Although medical students have prior knowledge of the need for satisfactory sleep in cardiovascular protection, the data obtained demonstrate undesirable sleep quality results and reduction in the number of hours slept, thus making new strategies for intervention and prevention of future CVD necessary in this population.

C-47 | Brachial systolic blood pressure, microalbuminuria and 24-hour urinary sodium excretion as predictors of central systolic pressure in resistant hypertensive patients

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Introduction: Resistant hypertensive patients have a high prevalence of injuries in target organs. The increase in central systolic blood pressure (CSBP) is more relevant than the increase in peripheral blood pressure in these patients, due to exposure of heart, brain and kidneys to high values of CSBP. In addition, increased CSBP is directly related to left ventricular hypertrophy, enlarged left atrium, ischemic heart disease, brain damage and renal dysfunction. Currently, an evaluation of CSBP and the Augmentation Index (AIx) may be useful for stratifying cardiovascular risk and there is evidence that an improvement in CSBP leads to a reduction in cardiovascular events and guides antihypertensive treatment with more effective drugs in reducing CSBP.

Objective: To identify markers associated with elevated CSBP in resistant hypertensive patients on antihypertensive treatment.

Methods: An open prospective study was conducted involving seventy-two hypertensive patients recruited at the FAMERP Hypertension Outpatient Clinic (44 women/28 men). Clinical characteristics and biochemical data were previously collected. Central systolic blood pressure (CSBP) and Augmentation Index (Aix) were measured using validated radial tonometry equipment – OMRON HEM 9000-A (JAPAN).

Results: Multiple regression analysis of CSBP showed a significant relation with systolic blood pressure, microalbuminuria and 24-hour urinary sodium excretion $r = 0.28$ ($P = 0.032$); $r = 0.24$ ($P = 0.046$) e $r = -0.24$ ($P = 0.047$), respectively.

Conclusion: Brachial systolic blood pressure and microalbuminuria demonstrated a positive correlation with increased central systolic pressure in resistant hypertensive patients. Urinary sodium excretion in 24 hours had an inverse relationship.

C-48 | Systemic arterial hypertension as a factor associated with urinary incontinence

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Introduction: Urinary incontinence is defined by the International Continence Society as the loss of any amount of urine involuntarily.

Its etiology is related to several diseases and has several risk factors, among which stand out systemic arterial hypertension, age and female gender.

Objective: The present study aimed to verify the frequency of systemic arterial hypertension in women with urinary complaints.

Methods: We conducted a cross-sectional study with women with urinary complaints, over 18 years old, attended at the Pelvic Floor Care Center (CAAP), located in Salvador, Bahia, Brazil. Data were obtained through the application of questionnaires (clinical and sociodemographic) after signing the informed consent form. Data collection was performed in a private room and by trained researchers, and was only initiated after approval by the Ethics and Research Committee of the Bahiana School of Medicine and Public Health (CAAE: 35038914.3.0000.5544).

Results: The total sample consisted of 166 women, with a mean age of 56.8 ± 13.6. Among the most frequent urinary complaints were: 61 (36.7%) stress urinary incontinence (SUI), 60 (36.1) mixed urinary incontinence (SUI), 32 (19.3%) urgency urinary incontinence (IUU) and 13 (7,8) overactive bladder (BH). Systemic arterial hypertension (SAH) was reported in 78 (47.3%) women, and Losartan was the most commonly used medication. Among women with SAH, 27 (34.6%) complained of SUI, 26 (33.3%) SUI, 17 (21.8%) reported UI, and 08 (10.3%) isolated overactive bladder ($P = 0.573$). In women who reported nocturia (increased urinary frequency at night), 06 (21.4%) also reported SAH. The nocturnal mythical frequency had a median of 1.85 (1–2) urination.

Conclusion: Urinary complaints are very prevalent among women. Among the population studied, approximately 47% had systemic arterial hypertension, with urinary incontinence and mixed urinary stress incontinence being the most frequently observed in these patients. This study demonstrated that hypertension is an important factor associated with urinary complaints.

C-49 | Prevalence of metabolic syndrome and risk factors for the development of cardiovascular disease among truck drivers in Southern of Brazil

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Introduction: Metabolic syndrome (MS) is characterized by a set of risk factors associated with cardiovascular disease. This set encompasses a combination of metabolic changes such as insulin resistance, due to visceral fat accumulation, reduced low-density lipoprotein (HDL) and increased triglycerides, as well as Systemic Arterial Hypertension (SAH) in the same individual. It is extremely important to highlight that MS increases cardiovascular mortality by 2.5 times. Its presence provides a high risk of long-term death. The aim of this study was to evaluate the prevalence of MS among truck drivers.

Methods: Prospective observational study, conducted with 200 truck drivers who drove over more than 160 km/d. The prevalence of the following risk factors for cardiovascular disease was investigated: consumption of tobacco, alcohol and other drugs; family history of cardiovascular disease; anthropometric assessment; blood pressure; blood collection to assess lipid and glycated hemoglobin (HG) profile. To establish prevalence, frequency analysis was performed; associations were established by Chi-square test and Poisson regression analysis.

Results: The average age was 42.94 ± 9.3 years, the median life of profession was 17 years, 57% with regular contracts with companies, 20.5% smokers, 77% consumed alcohol and 11.5% used stimulants. 36% had SAH and 13% were diabetic. Only 15.5% had adequate weight, 56% had visceral obesity and 56% increased neck circumference. As for MS, 10.5% had this condition. There was an association between higher HG indexes and higher Time of profession $P* = 0.011$ (0.009–0.013); Autonomous employment bond $P* = 0.029$ (0.017–0.023); Alcohol $P* = 0.048$ (0.044–0.53); SAH $P* = 0.048$ (0.044–0.052); Lower HDL rates were also associated with longer time of profession $P* = 0.047$ (0.042–0.051). In the multivariable analysis, there was an association between the highest levels of HG with the longest working time $P* = 0.000$ (0.4–0.324); Autonomous employment bond $P* = 0.038$ (1.066–9.841); Regular alcohol consumption $P* = 0.009$ (1.253–4.792); and SAH $P* = 0.025$ (1.105–4.271).

Conclusion: Long-distance truck drivers have a high prevalence of CVD risk factors, but low prevalence of MS when compared to other populations. The unique characteristics of this profession suggest that traditional precautions are not sufficient to change this scenario.

C-50 | Relationship between systemic arterial hypertension and diabetes mellitus current and during the gestational period

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Introduction: Gestational diabetes mellitus (GDM) has a prevalence of around 3-25% in pregnancies and this condition is defined as carbohydrate intolerance of variable severities, that doesn't fit in the criteria of diabetes mellitus (DM). The gestational hypertensive syndrome (GHS) has an incidence of 7.5% in pregnancies, with relevance in maternal and fetal morbidity and mortality, responsible for 20-25% in all causes of maternal death. Both diseases are possible

complications of pregnancy, linked mainly to risk factors such as obesity, smoking and nulliparous. The purpose of this study is to analyze the history of GDM and GHS in women who were attended in community action (CA) in Rio de Janeiro and the current prevalence of DM and arterial hypertension (AHS) in this same population.

Methods: A cross-sectional descriptive study with an application of a questionnaire approved by the ethics local committee, addressing GDM history and GHS in women who sought spontaneously to the CA on May 2019. The inclusion criteria were (1) women over 18 years old, (2) A gestational history, (3) have signed the free and informed consent. During the CA capillary glycemic was performed (without controlled fasting) and blood pressure was measured with Omron® appliance. Statistical analysis for comparison between the groups performed by Student's t-test and for categorical variables (clinical characteristics), the chi-square test using Prism 8.0 software (GraphPad, United States).

Results: Data from 70 women who participated in the CA, 18 were excluded for not meeting the criteria of inclusion. Of those included (n = 52), 27% had GHS and 64% were chronically hypertensive. Of the hypertensive women currently, 35% had GHS against 19% who had GHS and didn't become hypertensive patients ($P = 0.21$), with no difference in the SBP between the two groups (139 mm Hg ×137 mm Hg, $P = 0.84$). Of the women with GDM (n = 2), none has the currently diagnose of DM, with no difference in Glucose blood of those who did not have GDM (105 × 106, $P = 0.96$). However, all of them presented proteinuria (versus 17% without GDM in the past, $P < 0.05$).

Conclusion: At the studied population, we observed a prevalence of GDM similar to other studies, however with prevalence three times higher for GHS. Despite being a small number of participants who do not present pressure or glycemic difference between the groups, significant proteinuria was observed in those who had GDM. Larger studies are necessary to evaluate the possibility of nephropathy after GDM.

C-51 | Analysis of prevalence of systemic arterial hypertension and frequency of use of different classes of antihypertensives in community campaign in Rio de Janeiro

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Introduction: Systemic Arterial Hypertension (SAH) is a multifactorial clinical condition characterized, today, as a sustained rise in systolic blood pressure (BP) (≥140 mm Hg) and/or diastolic (≥90 mm Hg). Since the first measure of BP in 1711, passing through Korotkoff in 1905 and the launch of the first antihypertensive in 1954, drugs with different mechanisms of action have been developing, with the purpose to reduce cardiovascular morbidity and mortality associated with SAH.

Objectives: Analyze the prevalence of hypertension in community campaigns and the frequency of use of different classes of antihypertensive drugs.

Methods: Cross-sectional descriptive study carried out during community campaign in a community in the West Zone of Rio de Janeiro. A standardized questionnaire, approved by the local institution's Ethics and Research Committee, was applied to all participants who met the inclusion criteria: (1) be over 18 years old, (2) have signed an informed consent form. BP measurement (Onrom® device) was performed on the right upper limb at 3 different times and the simple mean was used to describe the results. The measurement of anthropometric data was also collected. Analysis performed with Prism 8.0 software (GraphPad, United States).

Results: Data from 98 participants aged 49 ± 14 years (mean ± standard deviation), 69% women, 42% considered themselves brown, 36% white and 17% black, with a body mass index of 29 ± 6 kg/m^2 (median±standard deviation) and a mean blood pressure of 136 × 79 mm Hg. It was observed 50% of participants with previous diagnosis of SAH, but 16% of non-SAH had values above 140 × 90 mm Hg. 45% (n = 22) angiotensin receptor blockers (ARB); 41% (n = 20) thiazides; 27% (n = 13) angiotensin-converting enzyme inhibitors (ACEI); 14% (n = 7) calcium channel antagonists; 4% (n = 2) vasodilators.

Conclusion: In a community action population, 50% were diagnosed with hypertension and 16% without previous diagnosis, but with values above normal. Among the most commonly used antihypertensive were ARB and thiazides, followed by ACEI and calcium channel antagonists.

C-52 | Risk prevalence for obstructive sleep apnea syndrome and association with risk factors for cardiovascular diseases among truckers in the southern region of Brazil

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Introduction: Obstructive sleep apnea syndrome (OSAS) is a chronic and progressive disease that is closely related to cardiovascular disease (CVD). The risk of developing cardiovascular disease is different among populations, including professional transport drivers. The tendency of traffic accidents in individuals with OSAS is high. Many accidents may be happening not because the truck driver does not take his rest period, but because of drowsiness related to OSAS and other cardiovascular diseases. Thus, it is urgent to investigate the

risk of OSAS among truck drivers since it is a group vulnerable to the development of CVD.

Methods: Prospective observational study conducted with 200 truck drivers who drove over more than 160 km/d. Sociodemographic data, risk factors for CVD, blood pressure levels and anthropometry were evaluated. The risk of OSAS was assessed with the Berlin questionnaire. To establish prevalence, frequency analysis was performed, associations were established by Chi-square test and Poisson regression analysis.

Results: The average age was 42.94 ± 9.3 years, 57% linked to transport companies, 20.5% smokers, 77% had alcohol consumption and 11.5% use stimulants. They reported a family history of cardiovascular disease 36.5%, 36% had hypertension, and 13% were diabetic. Only 15.5% presented adequate weight, 56% had visceral obesity and 56% increased neck circumference, 10.5% had metabolic syndrome. With respect to the objective of the study, the increased risk for OSAS was 45.5%. There was an association between sleep disorder and Time of profession $P* = 0.005$ (0.000–0.015); SAH $P* = 0.05$ (0.02–0.08); Obesity $P* = 0.000$ (0.000–0.015); Abdominal circumference $P* = 0.000$ (0.000 Ⱶ. 015); Neck circumference $P* = 0.000$ (0.000–0.015; hs-CRP $P* = 0.000$ (0.000–0.015); LVH $P* = 0.000$ (0.000–0.015). As for the multivariable association with SAH $P* = 0.013$ (0.407–0.899); Abdominal circumference >than 102 cm $P* = 0.023$ (0.381–0.932); Neck circumference >than 42 cm $P* = 0.008$ (0.390–0.8871); hs-CRP modified $P* = 0.004$ (0.468–0.864).

Conclusion: Long-distance truck drivers present a higher risk for OSAS than the general adult population. OSAS predisposes them to road accidents unrelated to non-compliance with rest hours.

	Sleep disorder		
Variable	Do not present	Present	P value
Profession time			
Up to 9 years	42	19	0.005 (0.000 Ⱶ0.015)
Over 10 years	67	72	
Body mass index			
Ideal weight	29	2	0.000 (0.000–0.015)
Obesity	80	89	
Systolic arterial hypertension			
Normotensive	82	46	0.05 (0.02–0.08)
Hypertensive	27	45	
Abdominal circumference			
Below 101 cm	71	17	0.000 (0.000–0.015)
Above 102 cm	38	74	
Cervical circumference			
Below 41 cm	69	19	0.000 (0.000–0.015)
Above 42 cm	40	72	
High-sensitivity C-reactive protein			

	Sleep disorder		
Variable	Do not present	Present	P value
Low risk	73	30	0.000 (0.000–0.015)
High risk	36	61	
Left ventricular hypertrophy			
Do not present	95	87	0.000 (0.000–0.015)
Present	13	4	
Cardiovascular risk stratification			
Low risk	91	52	0.000 (0.000–0.015)
Medium/High Risk	18	39	

Table 3. Parameter estimates

		95% Confidence Interval	
Parameter	Sig.	Inferior	Superior
Abdominal circumference	0.041	0.407	0.982
Cervical circumference	0.005	0.387	0.847
hs-CRP	0.003	0.471	0.852
Cardiovascular risk stratification	0.062	0.549	1.015

Dependent Variable: Sleep Disorder.

C-53 | Stratification of the cardiovascular risk and risk of developing target organ damage in truck drivers in the Southern Region of Brazil

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Introduction: Studies have shown that truck drivers accumulate many risk factors for cardiovascular disease (CVD) and limited access to health services. This study sought to characterize the cardiovascular risk in truck drivers.

Methodology: This was a cross-sectional and observational study, and was conducted with 229 male truckers who drove over more than 160 km/d. Sociodemographic data, family history of CVD, use of medicines, use of alcohol, tobacco and/or stimulant drugs, anthropometric measurements were evaluated; blood collection for assessment of lipid profile, glycated hemoglobin (HG) and high-sensitivity C-reactive protein (hs-CRP) was carried out. The risk of obstructive sleep apnea syndrome (OSAS) was assessed with the Berlin questionnaire, a resting electrocardiogram was performed, and the ankle-brachial index was assessed for target organ injury. Cardiovascular risk was classified according to the global assessment items of the 7th Brazilian Guideline of Arterial Hypertension. Associations were established by Chi-square test and Poisson regression analysis.

Results: The average age was 44.71 ± 10.11 years, the median time of profession was 18 years, and 54.6% of truck drivers had a regular employment relationship. Regarding factors of CVR, 21% were smokers, 74.7% consumed alcohol and 10.5% made use of stimulants. 42.4% SAH. Only 15.4% had adequate weight, 58.5% had visceral obesity. The increased risk for OSAS was 49.8%. Left ventricular hypertrophy was identified in 9.6% of cases, and 19.2% had ABI below 0.9. As for the CVR classification, 10% presented medium risk and 20.9% high risk for the development of CVD. We obtained an association between higher CVR with time of profession $P*$ = 0.016 (0.014⊢0.019), autonomous employment bond $P*$ = 0.016 (0.014⊢0.019), obesity $P*$ = 0.026 (0.024⊢0.029), visceral obesity $P*$ = 0.024 (0.021⊢0.026), altered glycated hemoglobin $P*$ = 0.007 (0.006⊢0.009), altered levels of hs-CRP $P*$ = 0.050 (0.048⊢0.054), sleep disorder $P*$ = 0.000 (0.000⊢0.015). The multivariate analysis showed that the highest CVR directly associated with time of profession $P*$ = 0.018 (0.335 ⊢0.901) autonomous employment bond $P*$ = 0.050 (1 ⊢ 2.144); the risk of OSAS $P*$ = 0.003 (0.299⊢0.776).
Conclusion: It is concluded that truck drivers are a group that needs qualified health actions, in order to reduce CVR.

C-54 | Association between maximum handgrip strength and cognitive performance in the elderly

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Introduction: Global cardiovascular and brain health is important for an independent life in the elderly. Both aging and hypertension are associated with reduced cognitive performance, especially in domains related to the frontal lobe. Matrix reasoning is a measure of abstract thinking, perceptual organization, and fluid intelligence.
Objective: To evaluate the association between maximum handgrip strength (MHS) and cognitive performance in the elderly.
Methods: Elderly individuals (n = 90), aged >60 years, underwent assessment of cognitive performance through the Mini-Mental State Examination (MMSE), Wechsler Adult Intelligence Scale 3rd Edition (WAIS-III) subtests and the Trail Making Tests (TMT) -A and -B. MHS was measured using a standardized protocol with a validated dynamometer. Participants were divided into groups of lower (G1) and higher (G2) strength, according to the MHS median, which was different for women (18 kg) and men (28 kg).
Results: The mean age was significantly higher in G1 (78 ± 7 vs 72 ± 6 years, P < 0.001), but the groups were homogeneous in relation to body mass index (26.5 ± 4.7 vs 28.1 ± 4.5 kg/m^2, P = 0.130) and blood pressure (142 ± 23/71 ± 10 vs 145 ± 22/75 ± 10 mm Hg, P > 0.05). In the cognitive evaluation, the groups were similar in MMSE (27.2 ± 2.1 vs 27.5 ± 2.1 pts, P = 0.521) and TMT-A (61 ± 23 vs 58 ± 31 seconds, P = 0.610), but G1 presented longer time in TMT-B (170 ± 125 vs 126 ± 91 seconds, P = 0.022) and fewer points in the Verbal Fluency subtest (14 ± 3 vs 17 ± 11 pts, P = 0.048). There was a significant correlation between MHS and Matrix Reasoning subtest (r = 0.25, P = 0.016), even after adjusting for age and education.
Conclusion: Lower handgrip strength was associated with lower cognitive performance in specific tests and could be considered a biomarker in older individuals.

C-55 | Compromise of medicine students with the measurement of their own blood pressure – Campaign of a private higher education institution in Rio de Janeiro Northern Zone

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Introduction: Systemic Arterial Hypertension (SAH) is a major public health problem, affecting 22.3% to 43.9% of the Brazilian population. Measurement of blood pressure (BP) is of paramount importance, as it allows monitoring population prevalence, guiding individual therapeutic approaches and identifying risk factors associated with hypertension. In addition, the monitoring of BP of medical students is very useful since changes in habits (eating, sleeping and physical activity) and stress itself can be important risk factors for hypertension.
Objectives: This study aims to elucidate the importance of measuring BP itself as a self-care measure for health among medical students at a private college in the North Zone of Rio de Janeiro.
Methods: Cross-sectional descriptive study with 286 medical students from 1st to 4th year of study; average age of 20.95 years (17-57 years); 62.2% (n = 178) female; 90.9% (n = 260) considered white; Mean BMI of 23.04 kg/m^2 (16.6-33.17 kg/m^2); average PA 115.4 × 64.89 mm Hg. The approach was performed by means of a semi-structured questionnaire on BP and cardiovascular risk, automatic BP measurement and anthropometric measurements. Data were analyzed by the SPSS version 21 statistical program.
Results: When asked about the frequency of BP measurement, 24.8% (n = 71) of the students reported measuring BP every 6 months, 17.1% (n = 49) reported measuring BP at most once a year, while 23.4% (n = 67) reported never having measured BP. It is also noteworthy that 17.8% claimed to measure BP only when they are "sick", 14% (n = 40) reported BP once a month and 2.8% (n = 8) reported weekly or daily BP. Of the respondents, 2% (n = 6) had a diagnosis of hypertension.

Conclusion: Although it is a mostly young population, more than 20% of medical students who have never measured their BP is significantly high. Being a population aware of the importance of measuring BP, when they do it, a large percentage is often inadequate, thus allowing a greater performance of risk factors present in their daily lives, making them vulnerable to significant cardiovascular changes in the future.

C-56 | Epidemiological and drug profile associated with polypharmacy in hypertensive elderly in basic health units of Synop-MT

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Introduction: The increase in longevity implies an increase in the prevalence of chronic diseases, costs and drug therapy. Systemic arterial hypertension (SAH), a chronic, multifactorial disease, detected almost late due to the asymptomatic course, may present associated comorbidities, such as diabetes mellitus and dyslipidemias. In addition to lifestyle changes, medications are used to control these pathologies. However, many elderly people need more than five drugs, increasing adverse reactions and drug interactions, which may reduce treatment adherence.

Objective: To analyze the epidemiological and drug profile of hypertensive elderly patients seen in the Basic Health Unit (UBS) and, subsequently, to verify the incidence of polypharmacy in this group.

Methods: A cross-sectional descriptive study was conducted to trace the epidemiological and drug profiles of hypertensive elderly in UBS of Sinop-MT. A total of 328 medical records of patients aged 60 years or older were analyzed. The polypharmacy was surveyed based on Anatomical Therapeutic Chemical.

Results: The analyzed population was 57% female and 43%, male. The average drug used per patient was 1.43, with antihypertensives (46.17%) being the most prevalent. Within this class, Losartan (24.88%), Hydrochlorothiazide (23.50%) and Captopril (9.22%) are widely used. Anticoagulants (9.15%), statins (7.66%), hypoglycemic agents (7.87%), antidepressants (5.32%), drugs for the treatment of gastrointestinal disorders (6.80%) and thyroid disorders (4.04%) are on the list of polypharmacy prevalence. In this context, polypharmacy was observed in 16.8% of the patients analyzed.

Conclusion: Due to the higher incidence of chronic diseases and associated comorbidities, the combination of different drugs in the same patient becomes necessary, especially when the change in lifestyle does not cause clinical improvement and the initial conduct for the treatment of pathologies is drug prescription. Thus, the risk of harmful drug interactions is increased, such as the concomitant and not recommended use of thiazide diuretics and oral hypoglycemic agents, which may deteriorate the health of the elderly and reduce the continuity of treatment.

C-57 | Diet and sedentary lifestyle as cardiovascular risk factors among medical students at a private higher education institution in Rio de Janeiro

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Introduction: In the face of compromises unavoidable and tasks that the medical student's routine imposes, the simple health-care habits are becoming a second plain on most people's busy schedule. The alarming growth of sedentary lifestyle and inadequate diet among the stressful and short-term daily life are now considered the pillar that underlies the growth of diagnoses of obesity and cardiovascular diseases.

Objective: The aim of the study is to describe the dietary patterns and physical activity (PA) profiles among medical students at a private college in the North Zone of Rio de Janeiro and to identify whether their entry into college interfered with these profiles.

Methods: Cross-sectional descriptive study with 286 medical students from the 1st to the 4th year of college; average age 20.95 years (17-57 years); 62.2% (n = 178) female; 90.9% (n = 260) considered white; Average BMI 23.04 kg/m^2 (16.6-33.17 kg/m^2); pressure average of 115.4 × 64.89 mm Hg. The approach was performed using a semi-structured cardiovascular risk questionnaire, automatic blood pressure measure, and anthropometric measurements. The data were analyzed by the SPSS version 21 statistical program.

Results: Regarding the frequency of ingestion of fat (extra fat from red meat), 30.8% (n = 88) ingest once a week, 27.3% (n = 78) ingest 2 or 3 times a week and 23, 8% (n = 68) ingest more than 3 times a week. Regarding the addition of salt (use of salt shaker in already made food preparations), 24.5% (n = 70) reported adding salt. Regarding the worsening of eating habits after starting college, 42.7% (n = 122) reported worsening after starting college. Between the interviewees, 23.8% (n = 68) do not perform PA and 76.2% (n = 218) perform some type of PA. Of the 218 students who perform PA, 19.9% perform only aerobic activity, 8% only anaerobic activity and 51% students perform both. About 72.7% (n = 208) of the students believe that the routine of a medical student harms PA practice.

Conclusion: The data obtained in this study corroborate not only the data from the VIGITEL program of the Ministry of Health but also with others literature data that shows that health professionals have their eating habits and PA profiles negatively altered by the context in which one of them is inserted. Thus, it is important to point out that interventions are needed to mitigate these detrimental effects and improve student's quality of life.

C-58 | Association between acute coronary syndrome, adherence to medicinal therapy and lifestyle modification in hypertensive patients

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Introduction: There are several factors which contribute to the outcome of Acute Coronary Syndrome (ACS) in hypertensive individuals. Noteworthy factors are; the poor adherence to pharmacological treatment, drug monotherapy and the non-change in lifestyle after the beginning of treatment. Furthermore, factors such as the follow-up of patients, mainly in primary care, reveal the importance of the general practitioner in monitoring hypertensive participantes da pesquisa.

Objective: The study aims to document and relate the use of anti-hypertensive medications and lifestyle changes as a way to prevent ACS in hypertensive patients.

Methods: This is a cross-sectional study, performed in the ward of a University Hospital in the city of Cuiabá – MT, Brazil. Forty hospitalized hypertensive patients due to ACS were evaluated. Data were collected via interviews between May and June 2019. Subsequently, descriptive and statistical analyes were performed. The sample comprised 40 individuals, between 39 and 81 years old, hypertensive and who suffered acute coronary events, including AMI, ST-segment elevation myocardial infarction (STEMI) or non ST-segment elevation myocardial infarction (NSTEMI), and unstable angina. Most (n = 33) were men.

Results: It was observed that 71.42% of women had some ongoing comorbidity, with Diabetes Mellitus being the most recurrent (n = 22). Regarding the use of medications, 65% of the patients made regular use of them, 67.5% knew which drugs they used and only 35% associated more than 2 drugs to control BP. There was a predominance of patients who regularly follow up in health services (72.5%), highlighting the primary care as the most used network, whose search comprises half of the data (n = 20). In addition, the majority (65%) has not yet adapted their habits to a healthy lifestyle and is poorly controlling their blood pressure, given the large amount that has remained on its own or does not use any medication. In the studied population, there is a prevalence of ACS in elderly, male patients with diabetes mellitus. This data are confirmed by the lack of adherence to drug therapy and, above all, the maintenance of life habits, such as poor diet and sedentary lifestyle, contributing to the decompensation of hypertension and providing cardiovascular complications.

Conclusion: Thus, there is a need for greater intervention by the PHC physician in the follow-up of these patients, since it is in primary care that the underlying pathology can be monitored, preventing complications.

C-59 | Analysis of the epidemiological profile of confirmed cases of maternal death as a direct obstetric cause for hypertension in Brazil from 2014 to 2018

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Introduction: According to WHO, maternal death (MD) occurs during pregnancy or within 42 days after its termination due to pregnancy-related or pregnancy-related measures and not due to accidents or incidents. Hypertensive disorders of pregnancy cause severe morbidity, prolonged disability, and death. Preeclampsia and eclampsia are the main causes of maternal and perinatal morbidity and mortality. Assessing health inequities is crucial as well as rescuing the historical differences that indicate the ways of living, falling ill and dying in the country.

Objectives: To describe and analyze the epidemiological profile of confirmed cases of maternal deaths with a direct obstetric factor due to hypertension in Brazil, having as source data reported at SINAN from 2014 to 2018.

Methods: Descriptive and retrospective study of secondary data from the Maternal Health Surveillance Secretariat Mortality Monitoring Panel, notified on SINAN, from 2014 to 2018. For Windows version data, we selected confirmed cases of maternal death with a direct obstetric cause due to hypertension in Brazil. These data were analyzed using Microsoft Office 2016® and is freely accessible via the internet and available at http://svs.aids.gov.br/dantps/centrais-content/monitoring-panels/mortality/maternal/.

Results: From 2014 to 2018, 1555 cases were registered. The Northeast region concentrates the largest number of cases (584), followed by the South Region (488). 2017 was the year with more cases reported (332), with the Northeast and the South Regions leading these statistics. These deaths prove the population's level of development and they could have been avoided if the health system

allowed people to have access to well-structured and qualified services. In the majority of cases, the mother`s age varied between 30 to 39 years old. In the context of early screening for preeclampsia, advanced maternal age is a determining factor for complications during pregnancy. By region, North and Southeast presented differences, with 97 and 48 deaths, respectively, in women between 20-29 years.

Conclusion: Although MM is generally preventable, the numbers of deaths are high in Brazil. The epidemiological profile of pregnant women with hypertensive disorders should be known to provide prevention of good prenatal assistance, leading to early identification of conditions and development of appropriate therapies to follow up pregnant women with identified risk factors.

C-60 | Incidence of hospitalization and mortality from hypertensive crisis in Brazil in 10 years of follow-up

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Introduction: Hypertensive crisis is a condition of fast and asymptomatic elevation of blood pressure with risk of target organ deterioration or potential life. It is the most frequent clinical emergency in emergency rooms and demands fast action requiring intensive care hospitalization.

Objectives: To compare hospitalizations and deaths from hypertensive crisis in Brazil in 10 years.

Methods: This is a cross-sectional, descriptive and retrospective study with a secondary source of data, targeting the study of hospitalizations and mortality of the population due to hypertensive crises in Brazil from 2008 to 2018.

Results: During the period, Brazil registered 1 055 000 hospitalizations for the treatment of hypertensive crisis, equivalent to 5.7 hospitalizations per 1000 inhabitants, with the North and Northeast regions having the highest records, with an average of 7.4/1000 and about 16/1000 in the states of Maranhão and Piauí, while the lowest values were registered in the Southeast, there was also a reduction of 81% across the country, 215% in the Midwest, 109% in the Southeast, and 33% in the North, with a smaller decrease, noting Goiás, which decreased by 320%. Regarding the average value with hospitalization, it was 268 *reais* throughout Brazil, with lower values in the North and Northeast, being 203 *reais* in Piauí and Maranhão and higher in the Southeast and South, with an average of 296, reaching 304 in Minas Gerais. Regarding the days of hospitalization, the average was 3.3 days in all regions, highlighting Roraima with 7.6, Federal District with 5.6 and Paraná with 2.7, as there was a decrease in days in all states. Regarding the mortality rate due to hypertensive crisis, the average was 1.42 for the whole country, with 0.93 in the South and 1.67 in the Southeast, reaching 3.56 in Sergipe

and 0.55 in Maranhão. In addition, the mortality rate increased by 3.5% nationwide, with 57% in the Midwest except for the South, which decreased by 40%.

Conclusion: Although the prevalence of hospitalizations for hypertensive crisis in Brazil has decreased, the mortality rate has increased in most regions. The data obtained in this study show the need for greater investment in public policy planning aiming at chronic control of blood pressure, the best method to reduce the incidence of hypertensive emergencies.

C-61 | General mortality rate to hypertensive diseases: Prevalence of associated factors in 10 years in the northern Brazil

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Introduction: Arterial hypertension is an important cardiovascular risk factor that presents high prevalence and increase in the probability of negative outcomes in the population, when it is associated with other risk factors.

Objective: To verify the relation of mortality due to hypertensive diseases in the period of 10 years.

Methods: This is a cross-sectional, descriptive and retrospective study, with a secondary data source (TABNET), aiming of the study the mortality of the population due to hypertensive diseases in the northern region of Brazil between 2007 and 2017. The variables analyzed were: Sex, race/color, age, civil status and category of hypertensive disease. For statistical analysis, the chi-square test was used.

Results: The mortality rate to hypertensive diseases in the studied period was 1.7/1000, being higher in black people (2.32) and lower in yellow (0.6), with predominance in males. Mortality was higher in married and widowed and grew 140% in the population of 75 years or more. Moreover, according to the category of hypertensive disease, it increased by 137% to hypertensive renal disease and only 75% mortality to essential hypertension. Among the states, the one that recorded the highest mortality rate was Tocantins (3.5), and the lowest was Amapá (1). For all States, mortality by race/color predominated in blacks, except in Acre and Amazonas with predominance of brown and White in Roraima. There was an increase in mortality in the population from 65 to 75 years or more in all States of the region, being more significant in Amapá and Roraima. The mortality to essential hypertension predominated in all states, except in Tocantins and Roraima that hypertensive heart disease was higher, on the other hand, mortality from Renal hypertensive disease and hypertensive heart and kidney disease was lower in all states. In addition, there was an increase in mortality to essential hypertension in 310% in Amapá, 208% in Amazonas, increased mortality to hypertensive heart disease in 322% in Amapá and 140% in Acre and,

finally, by Renal hypertensive disease in 315% in Tocantins and 175% in Amapá.

Conclusion: The prevalence of deaths from hypertensive diseases is still very high, mostly predominantly in men, elderly, black, and essential hypertension. The data obtained show the need for greater public investment in public planning aiming at the need for early interventions.

C-62 | Prevalence of mortality by hypertensive diseases and associated factors in south Brazil in 10 years of analysis

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Introduction: Hypertensive pathologies are risk factors for Cardiovascular Diseases, in Brazil, and concern for presenting a high prevalence and low control index.

Objective: To verify the relation between mortality by Hypertensive Diseases and associated factors, in a 10-year period.

Methods: It is a cross-sectional, descriptive and retrospective study, with a secondary data source, whose topic is mortality by Hypertensive Diseases in the population of the southern region of Brazil, between 2007 and 2017. The analyzed variables were: gender, ethnicity, age, marital status and category of hypertensive disease. The Chi-square test was used for statistical analysis.

Results: The mortality rate by Hypertensive Disease in the study period was 2.4, being higher among black people (3,4) and lower among brown people (1,2), predominantly for women. The mortality was higher for married and widowed people, and suffered an increase of 80% in those who were 75 or more years of age, and around 26% for those between 55 to 74 years. According to the category of Hypertensive Disease, it grew 163% for Hypertensive Heart and Kidney Disease, and only 43% for Hypertensive Heart Disease. Among the states, the highest mortality rate was in Paraná (PR), with 2.7, followed by Rio Grande do Sul (RS), with 2.3 and Santa Catarina (SC) with 2.2, with an increase of 50%, 59 and 68% respectively. For all the states there was a predominance of mortality on black and white people. Mortality rate suffered an increase of 36 % in those who were between 55 to 64 years old, and 25% in those who were 65 to 74 years old in PR. In SC, it was 74% and 43%, respectively, and 45% and 33%, respectively, in RS. The mortality by Essential Hypertension prevailed in all states, and its rate was higher in SC with 51%. In contrast, the mortality by Hypertensive Kidney Disease and Hypertensive Heart and Kidney Disease was the lowest in all the states. Besides that, there was a growth of 74% in mortality by Essential Hypertension in PR, and 55% in SC. The mortality from Hypertensive Heart Disease suffered an increase of 81% and 61% in SC and RS, respectively. Also, the mortality from Hypertension Kidney Disease grew 93% in PR, and 86% in SC.

Conclusion: The prevalence of deaths by hypertensive diseases is still too high, mainly in women, the elderly, black people and by essential hypertension. The data obtained show the need of greater public investment in the planning of polices aiming at early interventions.

C-63 | Temporal trend of mortality by hypertensive diseases in Brazilian southeast region and associated factors through 10 years of monitoring

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Introduction: Population aging establishes a direct relation with chronic no communicable diseases, Systemic Arterial Hypertension among them, which is responsible for a high level of morbidity and mortality in the population.

Objective: To verify the relation between mortality by hypertensive diseases and associated factors, in a 10-year period.

Method: It is a cross-sectional, descriptive and retrospective study, with a secondary data source, whose topic is mortality by hypertensive diseases in the population of the southeast region of Brazil, between the years 2007 and 2017. The analyzed variables were: gender, ethnicity, age, marital status and category of hypertensive disease. The Chi-square test was used for statistical analysis.

Results: The mortality rate by hypertensive diseases in the study period was of 2.6, being higher among black people (4.5) and lower among people of mixed races (1.9), predominantly for women. The mortality was higher for married and widowed people, and grew 48% for the population of 75 or more years of age, and around 20% for those between 55 and 74.

Furthermore, for category of hypertensive disease, it grew 58% for Hypertensive Heart and Kidney Disease, and only 8% for Hypertensive Heart Disease. Among the states, the highest mortality rate was in Rio de Janeiro (RJ), with 4/1000, followed by Espírito Santo (ES), with 3.1, Minas Gerais (MG), with 2.8, and São Paulo (SP), with 2.1, with a growth of 13%, 20%, 52% and 25%, respectively. For all the states there was a predominance of mortality at black and white people, it being 6.3 and 4.2 in RJ and 4.7 and 2.8 in ES. The mortality by Essential Hypertension prevailed in all states, except ES, where the highest mortality was by Hypertensive Heart Disease. In contrast, the mortality by Hypertensive Kidney Disease and Hypertensive Heart and Kidney Disease was the lowest in all states. Besides that, there was a growth of 121% in mortality by Essential Hypertension in MG and a decrease of 64% in ES, a growth of 71% and a decrease of 21% in the mortality by Hypertensive Heart Disease in ES and MG, respectively, and a growth of 77% in the mortality by Renal Hypertensive Disease in MG.

Conclusion: The prevalence of deaths by hypertensive diseases is still too high, mainly in women, the elderly, black people and by essential

hypertension. The data obtained show the need of greater public investment in the planning of polices aiming at early intervention.

C-64 | Differences in microvascular function and cardio-metabolic circulating biomarkers in middle-aged women and men with type 2 diabetes mellitus

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Introduction: Cardiovascular complications are the major cause of morbidity and mortality in diabetic population and they seem to be sex-specific. Endothelial dysfunction process has a crucial role in the impairment of vascular function associated with diabetes (DM). A greater understanding of sex-differences in diabetic vascular complications is important for better prevention and treatment in each sex. **Objective**: Therefore, the objective of the study was to examine the effects of type 2 diabetes (DM2) in the microvascular function and cardio-metabolic circulating biomarkers in middle-aged women and men. **Methods**: This study was approved by Ethics Committee of UNESP/UNICAMP (Brazil). Four groups were formed: postmenopausal women (MC = 16); diabetic postmenopausal women (MD = 15); middle-aged men (HC = 15); diabetic middle-aged men (HD = 14). All participants were physically inactive, non-smokers and did not use hormone replacement or insulin. Both diabetic groups (MD and HD) were on hypoglycemic oral therapy. Anthropometric parameters, blood pressure, and microvascular function were evaluated. The last one was assessed by EndoPAT 2000® and expressed by reactive hyperemic index (RHI). Fasting blood was collected to evaluate lipid and glycemic profiles as well as circulating biomarkers. ANOVA two-way was applied. **Results**: The age between groups was similar. Duration of DM2 was also similar between diabetic groups (MD = 7.5 ± 1.3; HD = 9.6 ± 2.3 years). Both diabetic groups presented increased levels of glycemia and glycated hemoglobin compared with their respective control groups. Only diastolic blood pressure was greater in HC in comparison with MC group. MD group (1.97 ± 0.14) showed impaired vascular function by RHI compared to the MC group (2.51 ± 0.13), a result not observed among men. Additionally, diabetic women presented reduced concentrations of adiponectin and increased concentrations of nitrite/nitrate and carboxymethylisine compared with MC group. Regarding C-reactive protein, it was observed that MD group presented increased concentrations comparing with HD group. **Conclusions**: Our results suggest that women are more sensitive to the deleterious effects of DM2 on microvascular function compared to men and this condition is accompanied by changes in cardio-metabolic biomarkers.

C-65 | Study of mortality from hypertensive diseases in the state of Rio de Janeiro over a 10-year period

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Introduction: Systemic Arterial Hypertension is one of the most prevalent diseases in the world and is also considered a public health problem due to its high prevalence and difficulty to control. Such pathology is characterized by a sustained increase in blood pressure, having influence on genetic and lifestyle factors. In Brazil, it is concerned because of its high prevalence and morbidity and mortality. **Objectives**: Verify the relation between mortality from hypertensive diseases and associated factors over a 10-year period. **Methods**: This is a cross-sectional, descriptive and retrospective study with a secondary source of data. The study aimed at the analysis of population mortality from hypertensive diseases in the state of Rio de Janeiro from 2006 to 2016. The associated factors evaluated were: gender, age, marital status, race/color, and education. **Results**: During the study period, 64 018 deaths were reported in the state of Rio de Janeiro, with 44% of deaths occurring in males and 56% in females. Mortality over the years increased from the age of 35 to 44 years, which was progressive with increasing age with its apex with individuals aged 75 and over. Regarding marital status, there was higher mortality in widowed individuals, corresponding to 35%, and the lowest value for judicially separated individuals, with only 6%. According to the study data on race/color, there was a predominance of deaths from hypertensive diseases in whites, followed by brown, black, yellow and indigenous. About this mortality, a value of around 50% is observed in whites and only 0.06% of the total in indigenous. Finally, in relation to education, mortality prevails in the population with 1 to 3 years; in contrast, the lowest rate is the population with 12 years or more of education. **Conclusion**: The prevalence of deaths from hypertensive diseases is still very high, predominating mostly in women, elderly, widows, white, with low education from 1 to 3 years. The data obtained in this study highlight the need for greater public investment in public policy planning aiming at the need for early interventions.

C-66 | Mortality rate from hypertensive diseases and associated factors in the Brazilian Midwest: 10-year follow-up analysis

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Introduction: Hypertensive diseases are an important cause of morbidity and mortality in the population, as they are risk factors for

cardiovascular diseases. In Brazil, this is a public health problem, due to the large expenses with hospitalizations due to its complications.

Objectives: Verify the relation between mortality from hypertensive diseases and associated factors over a 10-year period.

Methods: This is a cross-sectional, descriptive and retrospective study, with secondary data source, aiming at the study of population mortality from hypertensive diseases in the Midwest region of Brazil from 2007 to 2017. The variables analyzed were: gender, race/color, age, marital status and hypertensive disease category. For statistical analysis, the chi-square test was used.

Results: The mortality rate due to hypertensive diseases in the study period was 1.93, being higher in blacks (2.92) and lower in yellows (0.7), with predominance in males. Mortality was highest in married and widowed people and increased 86% in the population aged 75 and over, and about 36% in 65-74 years. In addition, over the category of hypertensive disease increased by 114% due to Hypertensive Heart and Kidney Disease and only 39% mortality by Essential Hypertension. Among the states, the one with the highest mortality rate was Mato Grosso do Sul, followed by Mato Grosso, Goiás and Distrito Federal. For all states there was a predominance of mortality in blacks and whites, except Mato Grosso where blacks and browns predominated. Mortality from Essential Hypertension predominated in all states, except in Mato Grosso do Sul where hypertensive heart disease predominated, and in contrast, mortality from renal hypertensive disease and cardiac and renal hypertension disease was lower in all states. In addition, there was an increase in mortality from Essential Hypertension of 148% in Goiás and 102% in DF, 77% and 48% from Hypertensive Heart Disease in Goiás and Mato Grosso do Sul, and an increase of 165% and 132% in mortality from Renal Hypertensive Disease in Goiás and Mato Grosso do Sul, respectively.

Conclusion: The prevalence of deaths from hypertensive diseases is still very high, predominantly in men, elderly, black, and essential hypertension. The data obtained show the need for greater public investment in policy planning aiming at the need for early interventions.

C-67 | The importance of primary hyperaldosteronism detection as a cause of secondary arterial hypertension: A descriptive analysis

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Introduction: Secondary Arterial Hypertension (SAH) has 3% to 5% prevalence and its clinical condition is characterized by elevated blood pressure levels above 140 × 90 mm Hg, based on another condition that, if treated, can cure or improve arterial hypertension, according to the VII Hypertension Directive of the Brazilian Society of Cardiology. One of the most common etiologies of hypertension is Primary Hyperaldosteronism (PH), a metabolic disorder in which aldosterone hormone production is excessively high, regardless of the renin-angiotensin system and sodium concentrations, with or without hypokalemia. PH is present in more than 10% of hypertensive patients, being more common in women (1-1.5 times more than men), its main causes being: adrenal adenoma, unilateral or bilateral adrenal hyperplasia, or, in rare cases, genetic alterations as in glucocorticoid suppressible hyperaldosteronism. The triggering mechanisms of hypertension are based on hydro saline retention secondary to PH, which causes hypervolemia and consequent compensatory increase in peripheral vascular resistance.

Objective: The aim of this study is to analyze the importance of PH detection in patients diagnosed with hypertension, describing the pathology and its pathophysiological mechanisms.

Methods: A bibliographic review was performed with a database structured in articles from 2004 to 2016 and searched on the SciElo platform and SBC website with the following descriptors: "hyperaldosteronism", "secondary arterial hypertension".

Results: Investigations of hypertension by the relationship of plasma aldosterone and renin concentration allowed a higher identification of PH, reaching prevalence rates exceeding 10%, reaching 20% among hypertensive patients. The main clinical findings of PH are low renin hypertension and hypokalemia, determined by the excess aldosterone that will act at the renal level. Inadequate aldosterone production in PH causes cardiovascular damage, plasma renin suppression, arterial hypertension, sodium retention, and potassium excretion which, if prolonged and severe, may lead to hypokalemia.

Conclusion: The prevalence of PH is increasing as blood pressure values increase among hypertensive patients and is an important cause of potentially curable hypertension. Since early diagnosis and appropriate treatment are made, morbidity is avoided, so it should be researched whenever possible.

C-68 | HYPERTENSIVE DISEASES AND ASSOCIATED FACTORS: MORTALITY OVER 10 YEARS IN THE NORTHEAST OF BRAZIL

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Introduction: Among cardiovascular diseases, hypertension is one of the most common worldwide, being responsible for high morbidity and mortality rates, especially among the elderly, thus being an important public health problem.

Objectives: Verify the relation of mortality from hypertensive diseases with associated factors over a period of 10 years.

Methodology: This is a cross-sectional, descriptive and retrospective study with a secondary source of data. The study aimed at the study of population mortality due to hypertensive diseases in the Northeast region of Brazil from 2007 to 2017. The variables analyzed

were: gender, race/color, age, marital status and hypertensive disease category. For statistical analysis, the chi-square test was used.

Results: The mortality rate for hypertensive diseases in the study period was 3/1000, being higher in blacks (3.15) and lower in yellows (0.87), with predominance in females. Mortality was highest in married and widowed people and grew by 21% over the years and 30% in the population aged 75 and over. In addition, according to the category of hypertensive disease increased by 80% by Hypertensive Kidney Disease and only 14% mortality by Essential Hypertension. Among the states, the highest mortality rate was Piauí (4.4) and the lowest was Maranhão (2.5). Mortality by race/color, was predominant in all states, except for Paraíba with predominance of brown, and Ceará of indigenous. Mortality due to Essential Hypertension predominated in all states except Rio Grande do Norte and Piauí, where Hypertensive Heart Disease was higher, in contrast, mortality from Renal Hypertensive Disease and Heart and Renal Hypertensive Disease was lower in all States. In addition, there was a 62% increase in mortality from Essential Hypertension in Bahia, 25% in Rio Grande do Norte and Maranhão, an increase in mortality from Hypertensive Heart Disease of 91% in Alagoas and 60% in Rio Grande do Norte in mortality from Renal Hypertensive Disease of 127% in Alagoas and 214% in Piauí.

Conclusion: The prevalence of deaths from hypertensive diseases is still very high, predominating mostly in elderly women, black and brown, and essential hypertension. The data obtained show the need for greater public investment in public planning aiming at the need for early interventions.

C-69 | Prevalence of systemic arterial hypertension and its risk factors in a historic county of Tocantins

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Introduction: Systemic Arterial Hypertension (SAH) is a non-transmissible chronic disease, with a multifactorial clinical condition characterized by sustained elevation of blood pressure levels, often associated with functional and/or structural alterations of the target organs and metabolic alterations. The disease is considered a serious public health problem, being an important risk factor for cardiovascular disease and becomes even more worrying when associated with other diseases such as diabetes mellitus, obesity, smoking and alcoholism.

Objective: Evaluate the prevalence of hypertension in the first quarter of 2019 in the population of Porto Nacional – TO, as well as its risk factors.

Methods: This is a retrospective, descriptive epidemiological study with a quantitative approach, referring to the first quarter of 2019. Data analyses was performed through the County Health Secretariat of Porto Nacional through the board of directors of epidemiological surveillance of no transmittable diseases.

Results: There are 4210 individuals diagnosed with the disease in the county until the study period, with a prevalence of 79.88/1000 inhabitants. Regarding age, the main age group affected by the disease is 50-79 years, with 67.10% of cases diagnosed. Regarding sex, women represent 56%, while men, the remaining 44%. Among the group of hypertensive patients in the city, 35% of individuals also have diabetes mellitus. Regarding the associated risk factors, it is possible to state that 19% are obese, 20% alcoholics and 59% are smokers. The number of obese prevails in females (58.25%) while in males prevails of alcoholics (69.14%) and smokers (64.34%).

Conclusion: SAH has a high prevalence throughout Brazil, a fact evidenced by non- infectious disease bulletins, clinical routine and published epidemiological studies. Thus, studies such as this one are representative and have relevance to guide the health services in their actions in order to make the population aware of the risks and the importance of treating and preventing the disease.

C-70 | The TG/HDL-c ratio influence on cardiovascular risk factors in hypertensive patients admitted in a systemic arterial hypertension referral center

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Introduction: The lipid profile is one predictor of the cardiovascular events already described in the literature. Recent studies show that triglycerides-high density lipoprotein cholesterol ratio (TG/HDL-c) can be predictive to diabetes incidence as well as cardiovascular disease mortality.

Objective: To analyze the influence of TG/HDL-c ratio over hypertensive outpatients profiles in a referral center.

Methods: It consists of a descriptive study, cross-section with convenience sample. We stated 3.5 as cutoff to elevated TG/HDL-c. Prior cardiovascular events were defined as coronary arterial disease occurrence or stroke. Data were obtained through medical record analysis and interviews by means of standardized gathering

record. Associations were expressed in function of prevalence ratio (PR) and the inferences through chi-square and T-tests.

Results: 91 patients were admitted in which 74.7% were women and 56.0% were black. The age average was 65.98 (±12.1) years. The oral anti-hypertensive medication (OAH) median was 3 (2.25–4). TG/HDL-c >3.5 frequency was 22.0%. Age [66.0 (±9.9) vs 65.9 (±12.7)] and OAH number [3.4 (±0.9) vs 3.1 (±1.0)] averages are greater in TG/HDL-c >3.5 group. TG/HDL-c >3.5 outpatients have greater mean blood pressure (MBP) [111.0 (±20.6) vs 100.0 (±11.4), $P = 0.02$], fasting blood glucose [136.6 (±47.9) vs 107.2 (±25.4), $P = 0.001$] and HbA1c [7.2 (±1.7) vs 6.5 (±1.0), $P = 0.024$]. Diabetes prevalence was greater in the group with ratio >3.5 (70.0% vs 42.3%, RP = 1.66, $P = 0.028$), as well as metabolic syndrome (95.0% vs 63.8%, RP = 1.49, $P = 0.007$) and previous cardiovascular events (31.6% vs 29.6%, RP = 1.07, $P = 0.866$).

Conclusion: Outpatients with TG/HDL-c >3.5 ratio are hypertensive with greater difficult to control blood pressure, showing greater MBP even with more OAH usage. They exhibit cardiovascular events more frequently such as diabetes and metabolic syndrome, in addition to bigger prevalence of previous cardiovascular events. Elevated ratio presence must lead to a cautions evaluation and, if necessary, a more intense clinical intervention. Since it is an easily and applicable ratio in clinic level and studies claim it as a possible cardiac disease mortality predictor can be incorporated to clinical practice.

C-71 | The overall mortality rate due to systemic hypertension over a 10-year period in the city of São Paulo

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Introduction: In Brazil, hypertensive pathologies are risk factors for cardiovascular diseases and concern for presenting high prevalence and low control index. Moreover, such diseases have as aggravating factor the large expenses with public health, due to the various hospitalizations caused by complications, such as cerebrovascular diseases, ischemic heart diseases and vascular diseases of the extremities.

Objectives: Verify the rate between mortality from hypertensive diseases and associated factors in the 10 years.

Methods: This is a cross-sectional, descriptive and retrospective study with secondary data source, targeting the study and population mortality of hypertensive disease in six regions of the city of São Paulo from 2006 to 2016. Associated factors taxed were: gender, race/color, age, and education.

Results: During the study period, 23 080 deaths were reported in the municipality, with 44.7% of deaths occurring in males and 55.3% in females, with differences between regions ($P < 0.0001$). The northern region predominates with a mortality rate of 22 deaths/100 000

inhabitants, while the southern region has the lowest rate with 14 deaths/100 000 inhabitants. Regarding the studied gender, males had an average of 17 deaths/100 000 men, being more prevalent in the north and less in the west, while females had an average of 19 deaths/100 000 women, having a higher prevalence in the north and smaller in the south. It was shown a predominance in blacks with 29 deaths/10 000 blacks and lower rate with indigenous, 7 deaths/10 000 indigenous. In analyzing, mortality by age group, was evidenced only increase in the number of deaths in the age group of 60 to 64 years, and of 75 years or more. Regarding education, mortality prevails in the population with 1 to 3 years of schooling, in contrast, the lowest rate is the population with 12 years or more of schooling.

Conclusion: The prevalence of deaths from hypertensive diseases in the city of São Paulo is in agreement with Brazilian studies. The mortality rate was found to be predominantly in black, elderly women with low schooling from 1 to 3 years. The data obtained in this study highlight the need for greater public investment in public planning aiming at the need for early interventions.

C-72 | Relation of family history to early coronary disease and classic risk factors: systemic arterial hypertension, obesity, smoking, and physical inactivity

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Introduction: Demographic, nutritional and epidemiological transitions have caused diabetes mellitus and systemic arterial hypertension to assume a growing and worrying burden for cardiovascular diseases, being worse when associated with a sedentary lifestyle, hypercaloric meals, and psychosocial factors. Family history (FH) of early coronary artery disease (CAD) is defined when a first-degree relative has developed CAD under 55 years for men and 65 years for women. The presence of multiple risk factors (RF) seems to have an additional negative effect on health; however, most health promotional actions address RF as if they were categorically distinct entities.

Objectives: Evaluate the relation between early CAD in FH and classic RF in a community campaign (CC) population in Rio de Janeiro.

Methods: Descriptive cross-sectional study with CC participants conducted in Itanhangá-RJ. A standardized questionnaire approved by the local ethics committee was applied and anthropometric data and blood pressure (BP) were measured on participants older than 18 years, who signed an informed consent form. Statistical analysis for comparison between groups was performed with Student's t-test

and for categorical variables (clinical characteristics), chi-square test using Prism 8.0 software (GraphPad, United States).

Results: Of the 93 participants who met the inclusion criteria, we observed that 28% had positive FH from early CAD and of these, 61% were hypertensive (versus 49% without FH, $P = 0.35$) and 42% were smokers (versus 32% without FH, $P = 0.43$). Regarding physical activity, of the patients with FH, only 11% did more than 150 minutes/wk versus 40% of those without FH ($P < 0.05$). Had no difference in systolic BP between groups (137 mm Hg × 135 mm Hg, $P = 0.66$) or body mass index (30 × 30 kg/m^2, $P = 0.81$).

Conclusion: Participants of this CC with positive HF from early CAD are more sedentary compared to participants without HF. Although, the comparison between the groups did not show statistical significance between hypertension and smoking, numerically unfavorable values were observed for the group with positive FH. Adopting a healthier lifestyle, especially with balance between exercise and diet, can reduce morbidity and mortality and improve quality of life. However, it is important to have broader and more effective health promotion activities that encourage multiple behavioral changes, targeting multiple RFs as a whole.

made with *Student t-test* and for other variables (clinical characteristics), the *chi-square test*, using *Prism 8.0 software (GraphPad, USA)*.

Results: Data obtained from 94 participants showed 55% had high probability of having OSAHS according to the Berlin questionnaire, with an average neck circumference of 40 cm (versus 36 cm for negative questionnaire, $P < 0.05$), average systolic arterial pressure of 141 mm Hg (versus 123 mm Hg for negative questionnaire, $P < 0.05$) and average BMI of 32 kg/cm^2 (versus 27 kg/cm^2 for negative questionnaire, $P < 0.05$). 90% of patients with high risk for OSAHS performed physical activities for less than 150 minutes/wk (versus 74% for negative questionnaire, $P = 0.05$). Regarding glycemia, it was observed that high-risk patients had numerically superior values (113 × 105 mg/dL, $P = 0.34$).

Conclusion: In the studied population, we observed that patients with high probability of OSAHS, according to the Berlin questionnaire, had higher results for blood pressure, BMI, neck circumference measures, glycemia and performed less physical activity compared to patients with negative questionnaire. Therefore, it's crucial to raise awareness for Obstructive sleep apnea-hypopnea syndrome, care for present comorbidities and refer the patients to reference centers for diagnosis and correct treatment.

C-73 | Assessment of blood pressure, anthropometric measurements and cardiovascular risk factors in a population with a high probability of sleep apnea covered during a community action

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Introduction: Obstructive sleep apnea-hypopnea syndrome (OSAHS) is underdiagnosed comorbidity leading to clinical and financial repercussions on public health. Recent prevalence studies exposed 50% of men and 23% of women suffer from OSAHS and are related to systemic arterial hypertension (SAH), anxiety, insulin resistance, and sudden death. Therefore, it's necessary to question the probability of having OSAHS and refer the patient to a reference center.

Objective: Observe the association between OSAHS and anthropometric measurements in participants of community action.

Methods: Cross-sectional descriptive study with application of the Berlin questionnaire, nationally validated to identify OSAHS. The inclusion criteria were: (1) having more than 18 years of age, (2) have signed the informed consent form, (3) have complete information record, being 5 patient's results annulled due to missing data. Arterial pressure results were obtained with digital Onrom® device, in three different moments. The result considered the average of the three. Statistical analysis for comparison between the studied groups was

C-74 | Analysis of the habit and the frequency of blood pressure measurement in participants of a community action in Rio de Janeiro

Marcus Studart Prata; Bernardo Pires deFreitas; Letícia Ayd Bittencourt; Tiago Mansur Kobbaz; Leonardo Demier Marcelino; Natalia Maciel; Livia Barbosa Peixoto; Beatriz Granado Duque Soares; Radames Miguel de Brito Montenegro; Maria Clara Almeida Cure Palheiro; Marianna Tavares Fernandes Pires; Carlos Luiz Filgueiras; Kelly Biancardini Gomes Barbato; Fábio Akio Nishijuka
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Objective: To analyze the habit and frequency of blood pressure measuring in a Community action in Rio de Janeiro.

Methods: A cross-section study was carried out in a community action in Itanhangá neighborhood, city of Rio de Janeiro, where 99 participants responded to a standardized questionnaire and had their blood pressure measured with an automatic measuring device (6 were excluded). The data were analyzed using the Fisher Test by Prism software 8.0.

Results: The participants with hypertension had a median blood pressure of 142 mm Hg and those with no hypertensive, 128 mm Hg ($P < 0.05$). Women were found to have measured their blood pressure more often than man in the last year ($P < 0.05$). Surprisingly 22% of the hypertensive in the moment of the measurement does not search for any type of treatment. 12% of the hypertensive did not have a consultation with a physician in the last year.

Conclusions: A better blood pressure control is needed among the hypertensive population. Comparing to men, women seem to

measure their blood pressure more often. A good part of the hypertensive participants has not gone to a doctor`s office in the last year. A better role of the healthcare professionals as an educator is needed in controlling high levels of blood pressure.

C-75 | Metabolic syndrome as a risk factor for atherosclerosis and heart failure development – A descriptive analysis

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Introduction: According to the American Heart Association, Heart Failure (HF) is a clinical syndrome that results from any structural or functional cardiac dysfunction that hinders the action of the ventricle to fill or eject blood, promoting inadequate blood supply to meet the body's metabolic needs. It is the first cause of hospitalization in patients over 60 years old in Brazil and it is seen as a highly limiting condition. Metabolic syndrome (MS) is currently known as a worldwide epidemic characterized by an association of cardiovascular risk factors such as hypertension, dyslipidemia, obesity, diabetes mellitus, which predispose to atherosclerosis, a chronic inflammatory disease that causes thickening and stiffening of the arterial wall systemically and is responsible for several cardiovascular diseases (CVD), including HF.

Objective: Describe the pathophysiology of heart failure, analyzing the role of metabolic syndrome and its risk factors involved, and as well of atherosclerosis in its development.

Methods: A literary review of scientific articles published between 1998 and 2018 obtained from the SciElo, PubMed and Google Scholar platforms, as well as international organ sites (PAHO and WHO), was made based on the following descriptors: "Heart failure", "Syndrome" "Atherosclerosis", "Cardiovascular Diseases", "Prevention".

Results: Literature data demonstrate the high prevalence of MS and HF, and that hypertension, dyslipidemia, diabetes mellitus and obesity acts as risk factors for HF. These factors facilitate the development of arterial endothelial dysfunction and atherosclerosis, involved in the pathogenesis of ischemic cardiomyopathy, an important etiology of HF in Brazil.

Conclusion: MS seems to be closely related to the pathophysiology of HF, having a relevant role in its etiology and prognosis. It is essential to emphasize the importance of prevention through lifestyle change and multidisciplinary monitoring, acting on monitored cardiac rehabilitation and healthy diets, considering the limitations and needs of each patient.

C-76 | Health education: Prevention of cardiovascular diseases in schools

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Introduction: Cardiovascular diseases (CVD) represent the main causes of morbidity and mortality in the world. As a way to change this scenario, programs in different countries have been adopted to reduce the impact of these diseases by reducing cardiovascular risk factors. The Academic League of Cardiology from Mucuri (ALCAM) performs, among other activities, extension actions that are in line with both these programs and the new curricular guidelines of the medical courses, which have as one of the approaches prevention and health promotion.

Objectives: Provide high school students with knowledge about modifiable cardiovascular risk factors, as well as how healthy diet and exercise contribute to the prevention of major CVD.

Methods: Lectures were given at two schools in the city of Teofilo Otoni, with an audience of 101 teenagers aged 15-19 years. The recommendations of the Ministry of Health and the World Health Organization were used, as well as a review of scientific articles on the subject. Information about the participants' satisfaction and suggestions was collected through a questionnaire based on the Likert Scale, with the following statements: (1) I had previous knowledge about the importance of healthy diet and exercise for health; (2) My knowledge on the subject has evolved; (3) The presentations were helpful to my life; (4) I would like to continue learning a little more about the topic. After reading the statements, students marked one of five options: strongly agree, agree, indifferent, strongly disagree and disagree.

Results: The answers review revealed that most students already had prior knowledge and would like to continue learning about the importance of healthy eating and exercise. In addition, most pointed out that the interventions contributed to the evolution of knowledge on the subject and were useful for their lives.

Conclusion: It was emphasized the importance of an investment in the current times, in healthy eating and exercise, so that a healthy aging is possible. The feedback demonstrates that this methodology can be an important CVD prevention tool.

AREA: MULTIPROFESSIONAL (MP)

MP-01 | Effect of different protocols of high-intensity interval exercise in ergometer cycle on post-exercise hypotension in hypertensive elderly women

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Introduction: Hypertension is a multifactorial chronic degenerative disease of high prevalence in the elderly. In addition to pharmacological treatment, it is known that exercise comprises an alternative strategy to drugs due to its hypotensive effects. Previous studies suggest that moderate-intensity continuous aerobic exercise and high-intensity interval exercise promotes post-exercise hypotension (PEH). In the present study, PEH corresponds to the difference between post-exercise blood pressure (BP) measurement at different moments and BP evaluation at rest.

Objective: To evaluate the effects of a short ($HIIE_s$) and long ($HIIE_L$) high-intensity interval exercise session on an ergometer cycle in PEH of hypertensive elderly women.

Methods: Eight hypertensive elderly women (66.1 ± 4.8 years; 29.2 ± 4.4 kg/m^2) underwent a session of $HIIE_s$ (30$_{sec}$ of stimulus/30$_{sec}$ of active recovery) and $HIIE_L$ (1 min of stimulus/1 min of active recovery) divided into warm-up and calm down (2 min; 50 < %HR_{max} < 70) and main part ($HIIE_s$: 10 min, 10 series; $HIIE_L$: 20 min, 10 series; 80 < %HR_{max} < 90). Exercise intensity was assessed by a heart rate monitor and systolic (SBP) and diastolic (DBP) BP was measured by an automatic monitor at rest and at 15, 30, 45, 60 and 90 minutes after each experimental session. Data, which are presented as mean and 95% confidence interval, were analyzed using two-way repeated measures ANOVAs and Bonferroni post hoc.

Results: For SBP, there was only a significant effect of time ($P < 0.01$; $\eta p^2 = 0.6$), in which a significant ($P < 0.01$) systolic PEH was observed at post-15 ($\Delta\% = -9.46\%$; 128.2 mm Hg [119.1-133.8]), post-30 ($\Delta\% = -14.19\%$; 124.0 mm Hg [119.1-128.9]), post-45 ($\Delta\% = -12.11\%$; 126.3 mm Hg [121.4-131.2]) and post-60 ($\Delta\% = -9.42\%$; 129.4 mm Hg [122.6-136.3]) in relation to rest (141.6 mm Hg [136.0-147.1]). No significant effect ($P > 0.05$) of time or condition or interaction was found for DBP.

Conclusion: High-intensity interval aerobic exercise is effective in promoting post-exercise hypotension in elderly hypertensive women up to 60 minutes post-exercise, regardless of stimulus or rest duration.

MP-02 | Patterns of physical activity and sedentary behaviours among medical students in Angola

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Introduction: Regular physical activity (PA) reduces the risk of premature all-cause mortality and the occurrence of non-communicable diseases in all groups. However, there are no data on physical activity regarding medical students in Angola. Our aim was to evaluate the patterns of PA as sedentary behaviors in medical students.

Methods: A random sample of 899 medical students was selected from three different types of medical schools (Public, Private and Military), during the academic year 2015. The PA levels were assessed using the Global Physical Activity Questionnaire (GPAQ v2). Sociodemographic data including age, academic year, gender and occupations were also collected.

Results: From a total of 899 participants (mean age 24.1 ± 6.1 years), 65.2% were women. More than half of students (69%) met the World Health Organization recommendations with significantly higher proportion in men 81.2% (95% confidence interval, CI: 76.8–85.5) than in women 62.5% (95% CI: 58.5–66.4). Transport (37.6%) and leisure-time (37.4%) domains were the main contributors for total time of PA practice. Overall, 83.6% reported to be engaged in moderate or vigorous PA, in a typical week. The median time spent on PA was 43.6 minutes/d while they spent 390 minutes/d on sedentary behavioral.

Conclusion: The results indicate that although most medical students met recommended levels of PA, however, the longer time they spent in sedentary behaviors may hinder the benefits that they would gain from physical activity. Therefore, this reinforces the need to implement modifications in the Medical School environments in order to encourage medical students to be more active.

MP-03 | Acute effects of aerobic exercise performed with different intensities and volumes on aortic pressure and pulse wave reflection in hypertensive and normotensive men

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Introduction: Although some studies show beneficial effects of aerobic exercise on aortic pressure and pulse wave reflection, little is known about these responses to the manipulation of prescription variables.

Objective: To investigate the effects of aerobic exercise with different intensities and volumes on aortic pressure and pulse wave reflection in normotensive and hypertensive men.

Method: Normotensive (n = 14) and hypertensive (n = 10) men classified according to the ambulatory blood pressure monitoring. Each participant underwent a non-exercise session as control (CTL) and three cycle sessions. The aerobic exercise protocols were composed of two isocaloric sessions, long moderate (L-MOD) and vigorous (VIG), with 300 kcal and 50% and 70% intensities of reserve oxygen consumption (VO_2R), and a short moderate session (S-MOD) performed with 150 kcal at 50% of VO_2R. Aortic systolic pressure (aoSP), aortic pulse pressure (aoPP), augmentation pressure (AP), augmentation index (AIx), heart rate (HR), and the AIx normalized by HR 75 bpm (AIx@75) were determined using applanation tonometry 10 minutes before and 70-minute post-intervention in a supine position.

Results: Compared to CTL, only the VIG elicited significant changes in aoSP (Δ−11.7 mm Hg), aoPP (Δ−7.4 mm Hg), AP (Δ−7.3 mm Hg), AIx (Δ−16.4%), HR (Δ +9.9 mm Hg), and AIx@75 (Δ−13.9%) in the hypertensive men.

Conclusion: The aerobic exercise effects on vascular properties were different depending on the exercise intensity and the individuals' clinical condition. Exercise intensity and volume did not influence pulse wave reflection and central pressure in normotensive men, while only vigorous exercise was able to decrease these responses in hypertensive subjects.

MP-04 | High-intensity interval aquatic exercise session promotes post-exercise hypotension in hypertensive elderly: A randomized controlled trial

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Introduction: Post-exercise hypotension (PEH) comprises lowering blood pressure (BP) to levels below those found at rest and presents clinical relevance in hypertension treatment.

Objective: To evaluate the effects of a high-intensity interval aquatic exercise (HIIAE) session on post-exercise hypotension (PEH) in 12 hypertensive elderly female subjects (67.3 ± 4.7 years, BMI of 28.0 ± 1.8 kg/m^2).

Methods: Subjects were submitted to both 45-min HIIAE and control (no exercise) sessions. Systolic (SBP) and diastolic (DBP) blood pressure (BP) were obtained at rest and at 15, 30, 45, and 60 minutes post-sessions.

Results: SBP decreased significantly in all measurements post-HIIAE session compared to rest (from rest: 130.1 ± 13.3 to 15: 115.1 ± 11.8; 30 minutes: 114.9 ± 11.8; 45 minutes: 112.0 ± 13.1 and 60 minutes: 115.7 ± 14.7 mm Hg, $P < 0.05$) with no changes in DBP ($P > 0.05$). Systolic PEH magnitude post-HIIE session was greater compared to control (15 minutes: −14.2 ± 13.9, 30 minutes: −14.8 ± 9.0, 45 minutes: −17.8 ± 8.0 and 60 minutes: −13.8 ± 10.4 mm Hg, $P < 0.05$).

Conclusion: HIIAE promotes systolic PEH in hypertensive elderly.

MP-05 | Tracking of the arterial pressure in residents of a municipality in the south of the Minas Gerais

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Introduction: Hypertension has affected high rates in the population, being one of the major causes of mortality from cardiovascular disease and an important public health problem. Early diagnosis is necessary by means of the trace conducted by properly trained and qualified health professionals.

Objective: To perform the tracking of the arterial pressure in residents of a town in the South of Minas Gerais.

Method: This is a descriptive, cross-sectional study, with a quantitative approach. The sample was selected for convenience, consisting of 107 participants. Tracing aims to achieve measures of arterial pressure with a view to the development of educational activities to prevent and control the disease and provide better quality of life. For the tracing, the team was qualification and training of the staff on the technique for arterial pressure measurement and the alignment of knowledge on the guidelines to be shared with the people. The data were collected in April 2018, month of the Prevention and Fight against Hypertension, with validated devices and according to the technique of the 7th Brazilian Guideline of hypertension[1] and stored in the program Microsoft Excel. The study was approved by the Ethics and Research Committee of the Universidade Federal de Alfenas-MG, with opinion number 139 507.

Results: The demographic characterization of the participants showed that 44.9% (48) were gender female and 55.1% (59) to male, aged between 20 and 70 years. Men and women presented as a result of the measures of arterial pressure, values considered within normal parameters. However, 14.0% (15) of people have had the results of your measurements considered as stage 1, that is, between 140-179/90-109 mm Hg. The study revealed the predominance of altered arterial pressure in men. In both the sexes, the dominant arm was right, and the cuff more used was of medium size. The study confirms to affirm the need to trace the arterial pressure more often and expect campaigns with this order, resulting in a greater awareness of the importance of the elevation of the arterial pressure as a cause of death and disability[2].

Conclusion: The tracking of hypertension becomes an important tool for early detection and health education, as it aims to improve significantly the quality of life and decrease the risk factors for cardiovascular diseases.

MP-06 | **Sedentary lifestyle as a risk factor for cardiovascular disease in vulnerable groups in central areas of São Paulo – 2018/2019**

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Introduction: Cardiovascular diseases (CVD) are the most common causes of death in Brazil, representing about 20% of the total death in adults. There are studies about the importance of knowing the risk factors to the development of this pathology, such as hypertension, which is defined as a multifactorial clinic condition characterized by high and sustained levels of blood pressure (BP) that can result in a risk increase to CVD, according to Brazilian Society of Cardiology (BSC). There are also worldwide worries about sedentarism, a lifestyle involving light physical activities, an indicator of risk to cardiovascular health; sedentarism is capable of producing deeply negative consequences to this system, as hypertension. Among the susceptible groups, there are those in street situation – a social group in urban areas that lives in against the economic strategic defined by large cities.

Objective: This research was made to relate a sedentary lifestyle as a risk factor to hypertension as a method for promoting health and preventing CVD in street inhabitants of São Paulo in Brazil.

Materials and Methods: Cross-Sectional, exploratory and quantitative field research was carried out in central areas of the city of São Paulo, previously approved by institutional Ethics and Research Commission under the protocol 036417, CAAE: 21519413.4.0000.5511, 161 street inhabitants, living in a vulnerable situation were randomly selected in the central area of São Paulo, Brazil. The age range chosen was from 18 to 66. They were submitted to a semi-structured questionnaire, between August 2018 and January 2019, that characterized their socio-demographic profile and the presence of risk factors to CVD associated to measure of BP and heart rate (HR) following the recommended Guidelines approved by institutional Ethics Committee respecting rules in force.

Results: Among those surveyed, sedentary individuals were 71%. The blood pressure levels were 134 × 88, above the normal parameters, highlighting that there is a strong ratio in with high blood pressure and light physical activities.

Conclusions: This study shows a relation between sedentarism and a huge increase of BP. During this research, interventions were made focusing on preventing CVD, using explanatory leaflets and lectures. Thus it is necessary that nurses participate in composing public politicians that leads to the creation of health programs focusing on health promotion and prevention of hypertension, with special attention to vulnerable groups living in street situation.
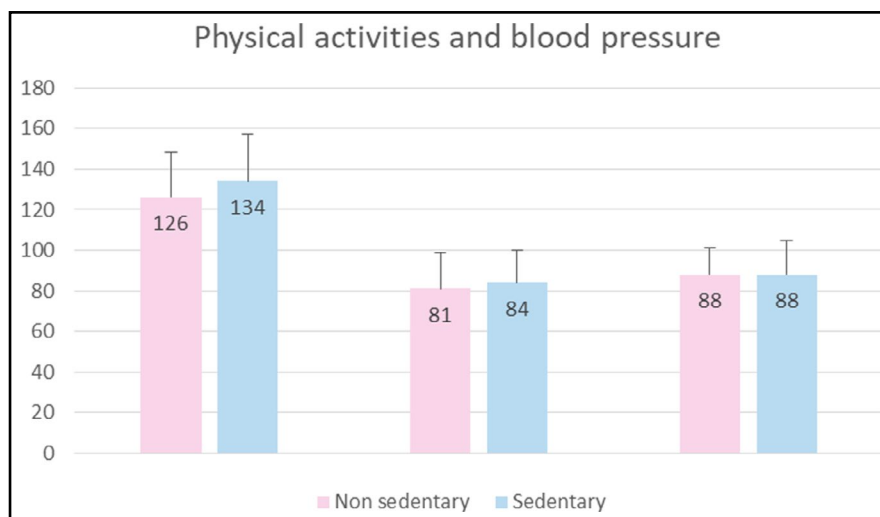
Graphic 1: BP comparison in sedentary and non – sedentary individuals

MP-07 | The presence of family medical history as a risk factor for cardiovascular diseases in the homeless in central region of São Paulo 2018/2019

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Introduction: Cardiovascular disease (CVD) belongs to a group known as a chronic disease and it is an important health problem, in order to its large number of death mortality and high costs to the health system. One-third of the total deaths occur in adults from 35 to 64 years. Many studies relate genetic predisposition to those diseases in individuals with familiar ancestor, noticing a strong association between family history and the development of CVD. Most of the street inhabitants don't know about how important family history is, contributing to the increase of risk factor, principally when it is in association with other risk factors, which is common in this vulnerable group.

Objective: This research was developed to relate family history as a risk factor for CVD in street inhabitants of São Paulo in Brazil.

Materials and Methods: A cross-sectional, exploratory and quantitative field research was carried out in central areas of the city of São Paulo, previously approved by institutional Ethics and Research Commission under the protocol 036417, CAAE: 21519413.4.0000.5511, 161 street inhabitants, living in a vulnerable situation were aleatory selected in the central area of São Paulo, Brazil. The age range chosen was from 18 to 66. They were submitted to a semi-structured questionnaire, between August 2018 and January 2019, that characterized their socio-demographic profile and the presence of risk factors to CVD associated to measure of BP and heart rate (HR) following the recommended Guidelines. Approved by institutional Ethics Committee respecting rules in force.

Results: Among those surveyed, those who did know if they have family history were 69.57% and their BP was about 130 × 81 mm Hg and 88 bpm for HR, and 29.81% affirmed to have family history, their BP was about 136 × 88 mm Hg and 88 bpm for HR. The blood pressure found was 134 × 88, above the normal parameters, highlighting that there is a strong ratio in with high blood pressure and family history.

Conclusions: This study shows a relation between vulnerable groups and a risk to develop CVD. Although medical family history, as a non-modified risk factor, is not well studied, our research suggests that is necessary to devote further efforts in prevention and intervention in this matter. This intervention may improve quality of life, clarifying nursing's paper as a manager in Primary Health Attention and health education, which is responsible for health promotion.

MP-08 | Complications in the newborn of mothers with hypertensive syndrome in pregnancy

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Introduction: The hypertensive syndromes in pregnancy classified as preeclampsia and eclampsia are characterized as a public health problem. The complications of this problem increase the risk of death for both mother and newborn. In some cases, anticipation of childbirth may be the best choice to preserve the life of both. Gestational hypertension occurs after the 20th week of gestation, with disappearance until the 12th postpartum week, and may be associated with proteinuria, convulsions, and thrombocytopenia.

Objective: To identify the main complications of newborns of mothers with hypertensive syndrome.

Method: This is an integrative review, carried out from May to June/2019, using as descriptors: gestational Hypertension, pregnancy, newborn complications in indexed databases such as VHL (Virtual Health Library). After crossing them in pairs and seeking to meet the objectives proposed for the study, five articles were selected for this review.

Result and Discussion: Within the complication from hypertensive syndromes are prematurity, fetal distress leading to intrauterine growth restriction, low birth weight and low Apgar score at 1 and 5 minutes requiring ventilatory support. Prematurity increases the rate of perinatal morbidity and mortality and may bring both immediate and late sequelae, increases hospital expenses and interferes with the newborn and family ties. Low birth weight also contributes to prolonged hospitalization processes and risks of morbidity and mortality in newborns.

Conclusion: Give the complications arising from hypertensive syndrome in pregnancy for newborns, the work of clinical and emergency actions is important to ensure rapid intervention, ensuring delivery and birth free of diseases.

MP-09 | Epidemiologic profile of patients with arterial hypertension in a cardiac rehabilitation program

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Introduction: A well-conducted cardiovascular rehabilitation program can significantly reduce blood pressure, therefore mitigating this co-morbidity burden. Getting to know this population may help to improve its adherence to treatment.

Objective: This study aims to describe the epidemiological profile of patients with arterial hypertension in a cardiac rehabilitation program.

Methods: We conducted a retrospective analysis of a convenience sample obtained from medical records of cardiac rehabilitation program participants in Caxias do Sul since 2013. The sample is constituted of 444 patients with high blood pressure. We collected data regarding diagnostics, gender, age, presence of high blood pressure, and other disorders such as coronary artery disease and heart failure. Exclusion criteria were data absence and/or divergence. Inclusion criteria were willingness to participate, providing signed informed consent, participating in the cardiac rehabilitation program and having high blood pressure. Descriptive and frequency analyses were obtained using software SPSS v 22.

Results: The majority of individuals were male (56.2%), with a global age average of 59.3 years. This study also presents chronic disease frequency data, which contributes to preexisting epidemiological literature. Around 73.8% of the patients presented with coronary artery disease, 22.2% with heart failure with reduced ejection fraction and 29% with diabetes mellitus type 2. Almost half of the sample (42%) had already had acute myocardial infarction, and another 33.5% had already been treated with percutaneous transluminal coronary angioplasty with stent placement. The presented data are consistent with current literature and reinforces the need for risk factors control in this population.

Conclusion: The results suggest that aspects regarding age, gender and sociodemographics are vital variables in understanding the profile of a group participating in a Cardiopulmonary Rehabilitation Program; therefore, allowing the setting of goals to reduce disease prevalence. We also suggest that further studies be conducted evaluating other pertinent characteristics to outline these patients' profile, not only demographically, but also functionally.

MP-10 | Aerobic fitness and heart rate variability in operational military police officers

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Introduction: Operational military police officers are expected to be physically capable of handling intense crime situations. However, despite the police daily routine being characterized as ostentatious work, it has long periods of sedentary activity, which may result in lower aerobic fitness and cause changes in heart rate variability (HRV), increasing the risk of developing cardiovascular diseases.

Objective: To verify whether aerobic fitness influences HRV in operational military police officers.

Methods: Forty operational military police officers were evaluated, divided by the median of the distance covered in the Cooper test in lower aerobic fitness group (<2400 m; n: 16) and higher aerobic fitness group (≥2400 m; n: 24): age: 36. 60 ± 5.49 vs 30.50 ± 5.69 years; MC: 85.40 ± 8.90 vs 80.30 ± 8.64 kg; waist circumference: 93.50 ± 6.77 vs 85.50 ± 7.44 cm, body fat: 27.85 ± 4.38

vs 24.70 ± 4.83%. Blood pressure, heart rate (HR) and HRV indices were measured after 15 minutes at rest (POLAR V800). The HRV indices evaluated were: square root mean of successive squared differences between adjacent iRR (RMSSD); the standard deviation of all normal iRRs recorded in a time interval (SDNN); standard deviation of instantaneous iRR (SD1); standard deviation of long-term analyzed iRR (SD2), LF u.n. low-frequency spectral component. HF u.n. high-frequency spectral component and LF/HF.

Results: The systolic blood pressure: 125.25 ± 7.97 vs 120.50 ± 10.95 mm Hg and diastolic: 80.25 ± 6.88 vs 73.00 ± 12.15 mm Hg were not different between groups. The RMSSD index (ms) 3.33 ± 0.35 vs 3.68 ± 0.38; SDNN (ms): 3.53 ± 0.28 vs 3.79 ± 0.27. SD1 (ms): 2.98 ± 0.34 – vs 3.34 ± 0.39; SD2 (ms) 3.75 ± 0.28 vs 4.01 ± 0.26. HF (ms^2): 6.02 ± 0.82 vs 6.33 ± 0.77; HF (u.n): 3.53 ± 0.44 vs 3.63 ± 0.37 were significantly higher for the higher aerobic fitness group. There were no significant differences for LF (ms): 6.37 ± 1.86 vs: 6.93 ± 0.60 and LF/HF: 0.66 ± 0.62 vs 0.51 ± 0.56. The distance performed (2200 ± 130.34 vs 2500 ± 157.88 m) correlated with the SD1, SD2, RMSSD, SDNN indices (r: 0.32–0.35).

Conclusion: Higher aerobic fitness influenced higher HRV values at rest. However, the higher aerobic fitness group also presented younger age and anthropometric measurements. This ensures greater cardiovascular health for dealing with extremely stressful situations common in the workplace.

MP-11 | Hypertensive patients admitted to a general intensive care unit: Clinical characteristics, severity, and outcome

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Background: Hypertension is an important public health issue, mostly due to its high prevalence in the adult population. However, there are few studies about the characteristics of hypertensive patients hospitalized in the intensive care unit (ICU).

Objective: To compare hypertensive and non-hypertensive patients hospitalized in an ICU as to clinical characteristics, outcome, and severity.

Method: Retrospective cohort study involving 541 patients from a general ICU at a private hospital in São Paulo. Biosocial variables were analyzed, hospitalization time, anthropometric and blood pressure variables, life habits, health history, antihypertensive medication, reason for hospitalization, medical intercurrences, supportive measures, laboratory tests, outcome and prognostic indicators (Simplified Acute Physiology Score III- SAPS III, Sequential organ failure assessment Score- SOFA and Charlson Comorbidity Index- CCI). Hypertension was defined by describing the disease or reference to antihypertensive medication in the medical record.

Results: The prevalence of hypertension was 67.65%. Hypertensive patients compared with non-hypertensive patients had significantly higher data ($P < 0.05$) in the presence of: widows; retirees; professional and intellectual scientists; body mass index; age, history of diabetes, dyslipidemia, chronic kidney disease, heart failure, ischemic stroke and acute myocardial infarction; values of systolic pressure, urea and creatinine on admission and discharge from the ICU; and severity of the patients evaluated by the SAPS III- Simplified Acute Physiology Score III. There was an independent association, in a LASSO regression, of hypertension with age (RR 1.043, IC 1.019-1.069) and retirement (RR 2.257, IC 0.870-5.808). Regarding the outcome, 7.6% of the patients died and 92.4% were discharged from the ICU. Of these, 91.7% went to other in-hospital units; 0.5% went to other hospitals, and 0.2% was discharged from the hospital. The readmission rate within 48 hours was 6.1%. There was no statistical difference between hypertensive and non-hypertensive patients regarding outcome variables.

Conclusion: There was a high prevalence of hypertension in the sample of patients admitted to ICU. However, hypertension was not a risk factor for severity of the patients and did not contribute to an unfavorable outcome.

MP-12 | The importance of health education in the treatment of systemic arterial hypertension

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Introduction: Systemic Arterial Hypertension is a serious public health problem in Brazil and worldwide, a disease of a multifactorial nature, which constitutes a risk factor for cardiovascular diseases, kidney disease, and other complications. It is a disease that requires attention from health teams, as well as self-care and user accountability before the condition.

Objective: Report the experience of educational activity on systemic arterial hypertension for users of a Basic Health Unit, in the city of João Pessoa, PB.

Methods: The Strategic Situational Planning was used, it began with the situational health diagnosis, through which data were collected through user records and the priority problem was the high number of hypertensive patients registered in the health unit. According to the problem prioritized in the unit, a literature review on the subject was necessary and afterward a plan of intervention was elaborated, the educational activity developed by medical students: "Importance of food in hypertension". The activity lasted approximately 120 minutes and included: user reception, blood pressure and fasting glucose measurement, explanation on the topic, handing out pamphlets, dynamics of questions and answers, setting up a food pyramid of 0.9 m × 1.2 m, and specific breakfast for this target audience.

Results: The event was dynamic and was attended by all users, making it possible to clarify doubts and exchange experiences regarding the subject of hypertension. Users have shown many questions about food. The academics presented explanations in popular language for a better understanding, facilitating the acquisition of new knowledge in health.

Conclusion: The need for continuous education work with users on hypertension was evidenced, considering that access to information in understandable language is fundamental for the development of the user's self-care. Adherence of hypertensive patients to treatment is still a major challenge for the professionals they follow. Thus, the UBS is fundamental the practice of educational activity, in the orientation and awareness about health care.

MP-13 | Literature analysis regarding failures in the blood pressure measurement technique

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Introduction: The indirect blood pressure measurement is used for the prevention, diagnosis, and treatment of patients with hypertension in varied phases of the disease progression. Although the procedure is considered simple and easy, many professionals do it in an inappropriate way and without scientific knowledge.

Objective: To identify in the literature failures to comply with the indirect blood pressure measurement technique performed by health professionals.

Method: Integrative review that analyzed studies published between 2013 and 2017, written in Portuguese, English and Spanish, in the databases "Cumulative Index to Nursing and Allied Health Literature", "Nursing Database", "Scientific Electronic Library Online", "Medical Literature Analysis and Retrieval System", "Latin American Literature and Caribbean in Health Sciences", "Spanish Bibliographical Index in Health Sciences" and "COCHRANE Library". The following guiding question was formulated for this review: What are the failures made by health professionals in complying indirect blood pressure measurement technique? Seven articles composed the sample, which was analyzed regarding identification, methodological characteristics and evaluation of methodological accuracy.

Results: Of the selected studies, five were developed in Brazil (71.5%), one in Egypt (14.3%) and one in the United States (14.3%); six were published in English (85.7%) and one in Portuguese (14.3%). Findings pointed to several failures related to indirect blood pressure measurement. In the patient preparation step, the most prominent failures were: failure to accomplish steps related to checking alcohol, coffee, cigarette, and food consumption 30 minutes before the procedure and lack of patient orientation. In the blood pressure

measurement step, the most important failures were: use of not calibrated devices, no measurement of arm circumference and inadequate cuff selection. In the registration step, the rounding numbers of blood pressure were highlighted.

Conclusion: Countless failures were identified during the indirect blood pressure measurement, mainly regarding patient preparation, measurement of arm circumference, cuff selection and procedure, which reinforces the need for the development of intervention studies that can promote the theoretical-practical knowledge of health professionals.

MP-14 | Greater body adiposity associated with lower microvascular reactivity in treated hypertensive patients

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Introduction: Several anthropometric indices have been proposed to determine the association between excessive weight and cardiovascular risk factors.

Objective: The objective of this study was to evaluate the relationship between body adiposity and microvascular reactivity in hypertensive patients under antihypertensive therapy.

Methods: A cross-sectional study was carried out on treated hypertensive patients (n = 81) aged 40 to 70 years, both sexes, submitted to anthropometric evaluation and blood collection to evaluate biochemical tests (glycemia, uric acid, lipid profile, C-Reactive protein), with subsequent calculation of adiposity indices such as conicity index (CI), body adiposity index (BAI), visceral adiposity index (VAI) and waist-height ratio (WHeR). In addition to these evaluations, the patients underwent vascular tests including microvascular reactivity analysis, pulse wave velocity (PWV) measurement and assessment of central hemodynamic parameters (by Sphygmocor). The participants were divided according to tertile of fat percentage (%F) obtained by electrical bioimpedance.

Results: The area under the curve (AUC) of cutaneous perfusion was lower in the upper tertile (97 ± 57% vs 67 ± 36%, $P = 0.027$). The %F showed a significant correlation with WHeR ($r = 0.77$, $P < 0.001$), VAI ($r = 0.41$, $P = 0.018$), CI ($r = 0.60$, $P < 0.001$) and VAI ($r = 0.65$, $P < 0.001$) in men, and only with WHeR ($r = 0.55$, $P < 0.001$) and BAI ($r = 0.60$, $P < 0.001$) in women. By linear regression, AUC perfusion change showed independent association with %F ($\beta = -3.15$, $P = 0.04$) in women and with glycemia ($\beta = -1.15$, $P = 0.02$) in men. There was no difference in PWV measurements.

Conclusion: The adiposity indices were more associated with the %F in men. The higher body adiposity was associated with lower microvascular reactivity, which was more evident in women. There was no difference in arterial stiffness, which may have been influenced by antihypertensive treatment.

MP-15 | Frequent errors in the measurement of blood pressure between physicians and nurses

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Introduction: Measurement of systemic blood pressure (BP) is a fundamental procedure in the semiological assessment of the cardiovascular system. BP can be measured by direct or indirect methods, the latter being the most common and requiring the use of a sphygmomanometer and a stethoscope or an oscillometric device.

Objective: To evaluate technical errors in BP measurement by health professionals (physicians and nurses) in tertiary hospitals in Luanda/Angola.

Methods: A cross-sectional study was conducted with a probabilistic sample of 91 health professionals (31 doctors and 60 nurses) from Américo Boa Vida (HAB), Josina Machel (HJM) and Lucrécia Paim Maternity (MLP) hospitals, all from Luanda/Angola. The sample was asked to fill in a questionnaire and to perform a simulated BP measurement (only for nurses). Results were presented as mean ± SD (standard deviation), absolute and relative frequencies.

Results: We observed that 65% of physicians and 30% of nurses, never had updated on BP measurement, 100% did not know the importance of regular validation of sphygmomanometers and oscillometer devices, necessity of measurement of the arm circumference (AC) to choose the appropriate cuff, 97% declared to select the cuff empirically and did not worry about the factors (environmental, intrinsic to the patient and technicians) that may influence the result and 92% did not estimate the SBP by the palpatory method before measuring BP by the auscultatory Method: As for the correct positioning of the patient, only 60% do; however, 88% of nurses have preference for digits that end in zero in the register of values.

Conclusions: There are a large number of professionals with little or no theoretical and practical knowledge in performing BP measurement, which can result in misdiagnosis and monitoring.

MP-16 | The relationship between arterial stiffness and food intake in hypertensive patients

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Introduction: Systemic Arterial Hypertension (SAH) can lead to target organ damage and macrovascular complications and may increase the arterial stiffness, represented by pulse wave velocity (PWV), a parameter that predicts the risk of cardiovascular disease (CVD).

Objective: To evaluate the relationship between arterial stiffness and food intake in hypertension patients.

Methods: Eligibility criteria were glomerular filtration rate (GFR) above 60 mL/min/1.73 m^2 and a 24-hour urine test. Weight, body mass index (BMI), waist circumference (WC), blood pressure and non-invasive vascular parameters (PWV measurement and Augmentation index (Aix) by applanation tonometry) were evaluated. Food intake was collected through three 24-hour dietary recalls and a Food Frequency Questionnaire (FFQ) was applied. Statistical analysis was performed using SPSS 22 software, where appropriate tests were performed for each variable. Error less than 5% was accepted to reject the null hypothesis ($P < 0.05$).

Results: Forty-one individuals were evaluated, most of them with uncontrolled blood pressure and low DASH score for the consumption of fruits, milk and derivatives, and sodium. There were inverse correlations between monounsaturated fat intake and PWV levels ($r = -0.316$; $P < 0.05$) and percentage of total fat intake ($r = -0.314$; $P < 0.05$). In addition, the increment index (AIx) showed inverse correlation between energy consumption ($r = -0.308$; $P < 0.05$) and protein ($r = -0.310$; $P < 0.05$), as well as AIX correct by 75 bpm (A5) and protein ($r = -0.321$; $P < 0.05$). Compared to PWV levels >10 m/s, we observed significantly lower values in the percentage of saturated fat consumption (9.83 ± 2.62 vs. 8.89 ± 4.94%, $P < 0.05$) and total fat. (44.36 (34.00-60.90) vs. 27.26 (20-36.57) g; $P < 0.05$), and higher blood glucose values (105.0 (96.0-117, 0) vs. 176.75 (130.25-232.5) mg/dL; $P < 0.05$) and HbA1C (5.80 (5.32-6.31) vs. 7.50 (6.40) -8.30) %; $P < 0.05$).

Conclusion: (1) There was a relationship between energy, protein, and monounsaturated fat intake and arterial stiffness parameters. (2) Blood glucose levels may increase arterial stiffness. (3) Control of food intake may influence arterial stiffness.

MP-17 | Active recovery does not accelerate cardiac autonomic regulation return to pre-exercise in young man with obesity independent of metabolic restoration

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Introduction: The physical exercise is a stress stimulus that promotes cardiac autonomic imbalance that can provide a favorable environment for cardiovascular events, reduced parasympathetic activity and obesity are related to greater exposure of these risks, previous evidence has confirmed the positive effects of active recovery on reducing metaboreflex activation, besides, the influence on vagal reactivation is not well established.

Objective: To assess whether active recovery accelerates parasympathetic reactivation post-maximal exercise in obese men.

Methods: Sixteen obese young men (26.2 ± 3.1 years; 34.1 ± 2.5 kg/m^2) underwent two experimental sessions with maximal incremental cycle ergometer test: (1) with 10 minutes of passive recovery (P) and (2) 10 minutes of active recovery (A) at 15 W, followed by 80 minutes in sitting position in both experimental sessions. Heart rate variability was assessed by the RMSSD index (root mean square of successive difference between adjacent RR intervals – RRi) and analysis of blood lactate concentration [Lac]. The LnRMSSD index was evaluated at the final 5 minutes of each 15 minutes interval. Vagal reactivation was considered when the LnRMSSD index values were not different from rest. Data were analyzed using two-way ANOVA (recovery *vs.* time), ($P < 0.05$).

Results: At the end of exercise the maximum load was 206.6 ± 31.4 W and the heart rate peak 182 ± 10 bpm for passive recovery, as well as 206.4 ± 38.4 W and 183 ± 10 bpm for active recovery. Post-maximal exercise, the [Lac] (recovery *vs.* time, F = 1.9, $P = 0.028$) was lower in active recovery at 3 (P: 3.1 ± 0.6; A: 2.6 ± 0.8 mmol/L, $P = 0.025$), 10 (P: 3.3 ± 0.7; A: 2.9 ± 0.7 mmol/L, $P = 0.003$) and 20 minutes (P: 2.5 ± 0.5; A: 2.0 ± 0.7 mmol/L, $P = 0.009$) and restoration of [Lac] pre-exercise (P: 0.9 ± 0.2; A: 0 9 ± 0.3 mmol/L) occurred at 30 minutes at active recovery (1.7 ± 0.8 mmol/L) and at 40 minutes at passive recovery (1.6 ± 0.7 mmol/L). When considering the resting LnRMSSD index values (P: 3.2 ± 0.4; A: 3.1 ± 0.5 ms), vagal reactivation occurred at 60 minutes passive recovery (2.8 ± 0.5 ms) and active (2.9 ± 0.5 ms), main time effect (F = 38.0, $P \leq 0.001$), with no difference between recovery types.

Conclusion: In obese young men, active recovery did not accelerate vagal reactivation, even favoring greater metabolite removal.

MP-18 | Reproducibility of heart rate variability indices by time-varying analyses and late recovery post-maximal exercise

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Introduction: While heart rate variability (HRV) indices show good reproducibility when assessed at rest, the reproducibility of immediate (i.e., using time-varying analysis) and late HRV recovery is not well established. Besides that, good reliability and agreement of post-exercise HRV indices would strengthen the use of this tool in the clinical context or evaluate adaptations resulting from physical training.

Objective: To analyze whether heart rate variability (HRV) is reproducible after maximal exercise in untrained healthy men.

Methods: Eleven men (22.1 ± 3.2 years) performed two maximal incremental tests followed by 10 minutes passive recovery (test and retest). HRV was analyzed using the time-varying approach, by the calculation of the time-domain indices RMSSD (root mean square

of successive difference between adjacent RR intervals – RRi) and SDNN (standard deviation of all normal RRi) on successive non-overlapped 30 seconds segments throughout the post-exercise recovery. HRV was also analyzed from the 5th to the 10th min ($HRV_{5-10\ min}$) of recovery, through the calculation of time- (RMSSD and SDNN) and frequency-domain (LF and HF) indices.

Results: For time-varying approach, there was high reliability (intra-class correlation coefficient – ICC: 0.72-0.96) and fair-to-excellent agreement (coefficient of variation – CV: 7.81-22.09 %) for LnRMSSD index. There was moderate-to-high reliability (ICC: 0.51-0.81) and good agreement (CV: 10.41-20.20 %) in most of the analyzed time points for LnSDNN index. In late recovery, there was high reliability and good agreement for time-domain indices ($LnRMSSD_{5-10\ min}$: ICC: 0.88; CV: 13.44% and $LnSDNN_{5-10\ min}$: ICC: 0.87; CV: 7.67 %). There was high reliability and poor-to-good agreement for the frequency domain indices ($LnLF_{5-10\ min}$: ICC: 0.72; CV: 12.33%; $LnHF_{5-10\ min}$: ICC: 0.87; CV: 34.21% and $LnLF/HF_{5-10\ min}$: ICC: 0.71; CV: 28.74%).

Conclusion: The LnRMSSD and LnSDNN indices analyzed in 30 seconds segments after maximal exercise in untrained healthy men showed good reproducibility. In addition, the $LnHRV_{5-10}$ min indices presented satisfactory reproducibility, with the time-domain indices showing higher reproducibility than the frequency-domain indices.

MP-19 | **Maximal exercise influence on ambulatory cardiac autonomic modulation on operational military police officers**

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Introduction: The police work is characterized by short periods of high-intensity tasks/activities. Thus a better overall physical fitness, including better aerobic fitness, is pertinent to police daily life. Additionally, maximal incremental test is a symptom-limited test, capable to evaluate the aerobic fitness e also can be used as a stressor to evaluate cardiac autonomic responses.

Objective: To analyze the maximal incremental test effect on ambulatory cardiac autonomic modulation in operational military police officers.

Methods: Seventeen male operational military police officers were evaluated (24 h/72 h shift work) with 32.84 ± 5.76 years, 27.64 ± 311 kg/m^2; 28.08 ± 3.85% of body fat and 92.68 ± 8.28 cm of abdominal circumference, normotensive (systolic blood pressure: 122 ± 9 and diastolic blood pressure: 78 ± 6 mm Hg) and physically inactive (1018.15 ± 1525.34 MET'S- minute/wk), submitted to two sessions (control and experimental). In control session, a 10 minutes rest period in seated position was performed, and then the Holter monitor (Cardios®, CardioMapa) was placed, for a 24 h period. In experimental session, after the rest period (following same procedures of control session) a maximal incremental cycle ergometer test was performed (with initial load of 25 W and increments of 25 W every

2 minutes, 50 rpm, until exhaustion), then the Holter monitor was placed. To test normality and homogeneity, the Shapiro Wilk and Levene tests were used, respectively. When necessary, HRV indices were transformed into natural logarithm (Ln), so that they presented normal distribution. To compare the variables between the control and experimental sessions over time (h), two-way ANOVA (Session vs. Time) of repeated measures was used, followed by Bonferroni Post-hoc.

Results: The participants performed 13.97 ± 1.64 min of test, reached maximum load of 200.00 ± 27.95 W and VO_2peak of 30.50 ± 4.56 mL/kg/min, what which classifies them as low aerobic fitness. A lower global activity (LnSDNN index) and higher HR in the 1st hour, and a lower parasympathetic (LnRMSSD index) until the 2nd hour after maximum incremental test compared to the control session, were verified.

Conclusion: The maximal incremental test was able to promote cardiac autonomic modulation changes in the two hours after testing in operational military police officers.

MP-20 | **Nutritional assessment of hypertensive patients assisted by the Food and Nutrition Surveillance Information System (SISVAN) of Ipubi – PE, Brazil**

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Introduction: Hypertension is one of the biggest health problems in Brazil, is associated with serious risks of cardiovascular morbidity and mortality. From this perspective, knowledge of the risk factors associated with hypertension becomes indispensable. The Food and Nutrition Surveillance System (SISVAN) enables the diagnosis and monitoring of the nutritional status of the Brazilian population.

Objective: This study aimed to trace the nutritional and epidemiological profile of hypertensive patients assisted by the Food and Nutrition Surveillance Information System (SISVAN) residing in the municipality of Ipubi – Pernambuco.

Methods: A descriptive study was conducted with analysis of data obtained from the SISVAN database for December 2018. The sample consisted of hypertensive patients who were enrolled in this system during this period. Body mass indexes (BMI) were analyzed according to gender and age strata. Data were analyzed according to descriptive statistics in absolute and relative frequency.

Results: Among the 21.55% hypertensive individuals, 18% were male and 82% female. As for age group: adolescent 2%, adult 62% and elderly 36%. Regarding nutritional status, 4% are underweight, 22% are of adequate weight, 42% are overweight and 32% are obese. Regarding the adult and elderly hypertensive population, there was

an equivalence in the distribution between the weight ranges, that 47.61% is above normal weight.

Conclusion: These findings point to the need to implement multi and interdisciplinary orientation programs, including, in addition to nutritional aspects, measures to prevent cardiovascular disease and diabetes mellitus. However, adopting a healthier lifestyle, changing some eating habits and combating physical inactivity, is not unachievable and should, therefore, be encouraged by every health professional involved with primary hypertension prevention strategies. SISVAN is an important instrument to support health promotion and prevention strategies in different management spheres.

MP-21 | Overview of a multi-professional care in arterial hypertension campaign

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Introduction: The importance of a multi-professional team in health care is well established and arterial hypertension (AH) is an excellent field for the application of this work because it is a complex clinical condition with different demands and different approach.

Objective: This study aims to outline an overview of multi-professional care and characterize the people who participate in health campaigns.

Methods: A cross-sectional study with convenience sampling realized in São Paulo (SP) between 2018 and 2019. A semi-structured instrument was used to record data and it was analyzed with descriptive statistics.

Results: Five health campaigns focusing arterial hypertension care were realized in this period, but only 36% of the subjects received orientations from all multi-professional team. The attendance started with social workers who explained the objective of the campaign, applied the informed consent and collected social demographic data. Of the 369 attended subjects, 62% women, mean age 46 ± 12 years old, 46% white people, 64% active workers, 95% habitants in SP, 35% received minimum income, 41% had medical insurance, 32% have completed high school and 32% with higher educational level. The nurses attended 342 people, evaluating blood pressure (BP), previous AH and knowledge about risk factors (RF): 39% had previous diagnosis of AH, 20% were hypertensive and 39% were pre-hypertensive at the time of measurement; the most suitable modifiable RF was salt intake (98%) and the least indicated was education (25%). The pharmacist evaluated 335 people,

identifying aspects of the use and disposal of medications: 23% disposed consciously, 60% use self-medication, 23% used medication for AH. Of the hypertensive patients, 53% were careless about the time of the medications, 59% forgot and 38% interrupted on their own. Nutritionists measured 317 anthropometrics data and sodium intake, evidencing 40% of overweight and 93% consumed >2 g/day of sodium. The physical therapists evaluated 271 people, identifying smokers and physical activity level: 32% smokers and 41% irregularly active or sedentary. The psychologists evaluated 193 people, identifying the presence of stress in 63%, 63% of them in the resistance phase and 22% in the almost exhaustion, prevailing the psychological symptoms (61%).

Conclusion: The multi-professional approach in collective action for AH has a positive impact, since it allowed specialized guidance from the identification of demands, contributing to the prevention of cardiovascular RF with care focused on need.

MP-22 | Effect of aerobic exercise in the water on pulse wave augmentation index and blood pressure in postmenopausal hypertensive women

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Introduction: The increase in life expectancy indicates that the world's elderly population is 13%, and can reach 20% in 2030. With the advent of menopause, women present a loss of hormonal cardioprotective mechanisms, leading to a substantial increase in the incidence of cardiovascular disease, mainly due to an increase of blood pressure (BP) values.

Objective: In the present study, we aimed to evaluate the effects of aerobic exercise in the water on arterial blood pressure and pulse wave augmentation index (AIx) of hypertensive postmenopausal women.

Methods: 84 hypertensive women, aged ≥ 60 years, with long-term adherence to aerobic exercise in the water (>6 months), were selected. Subjects were divided into 2 groups: sedentary (SED; n = 53) and trained (TR; n = 31) with 1.7 ± 0.3 years of exercise practice. A digital sphygmomanometer was used to office blood pressure measurement, and radial artery applanation tonometry method was used to calculate AIx.

Results: Body mass index (BMI) in the SED group was increased when compared to the TR (31 ± 1.0 vs. 28 ± 0.7 kg/m^2, respectively). Regarding AIx, no difference was observed between the SED and TR groups (30 ± 1 vs. 31 ± 2%). It was observed that the TR group (143 ± 1.7 mm Hg) showed no decrease in systolic BP (SBP) when

compared to the SED group (141 ± 0.4 mm Hg); however, the diastolic BP (DBP) in the TR group (79 ± 0.3 mm Hg) was reduced as compared to the SED group (80 ± 0.2 mm Hg). Mean BP (MBP) (SED: 100 ± 1.5 vs. TR: 103 ± 2.7 mm Hg) or pulse pressure (PP) (SED: 61 ± 2.1; TR: 64 ± 2.9 mm Hg) were not different between the groups.

Conclusion: Thus, these results highlight the impact of menopause, regardless of physical exercise, on cardiovascular outcomes. Therefore, the practice of aerobic exercise in the water did not reduce AIx and SBP; however, DBP was attenuated by exercise training, which supports the idea that this non-pharmacological treatment promotes protection from other harmful effects on menopause.

MP-23 | Association of lower retinal arteriovenous ratio with obesity and insulin resistance in non-diabetic hypertensive patients

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Introduction: The pathophysiology of retinal microvascular changes is related to metabolic and clinical changes, such as glycidic profile and weight gain, which leads to circulatory changes, such as loss of vascular tone and retinal blood flow alteration. Metabolic and blood pressure control may slow the progression of retinopathy.

Objective: To identify clinical and metabolic characteristics in non-diabetic hypertensive patients with low retinal arteriovenous ratio (A/V).

Methods: Cross-sectional study with treated hypertensive patients, both genders, aged between 40 and 70 years. Participants were submitted to clinical and nutritional assessment, oscillometric blood pressure measurement, biochemical assessment, 24-hour urine collection, central hemodynamic parameters (SphygmoCor) and retinography. Patients (n = 71) included were divided according to the median (0.71) of retinal A/V with 39 patients in the highest A/V ratio group (group 1) and 32 patients in the lowest A/V ratio (group 2).

Results: Systolic and diastolic blood pressure were similar in both groups (138 ± 10/84 ± 9 vs 137 ± 11/84 ± 8 mm Hg; $P = 0.895/P = 0.792$). Body mass index (BMI) presented higher values in group 2 when compared to group 1 (28 ± 4 vs 30 ± 4 kg/m^2, $P = 0.032$). Insulin (13 ± 5 vs 16 ± 7 mcU/mL, $P = 0.037$) and HOMA-IR (3.0 ± 1.3 vs 3.7 ± 1.6, $P = 0.050$) were also significantly higher in group 2. Proteinuria (140 ± 85 vs 123 ± 59 mg/24 h, $P = 0.352$) and 24 h-urinary sodium/potassium ratio (3.4 ± 1.5 vs 4.0 ± 2.1, $P = 0.131$) showed no significant difference between the groups. Similar values between groups were also observed in aortic systolic pressure (aoPS) (130 ± 15 vs 133 ± 17 mm Hg, $P = 0.482$). The retinal A/V ratio showed significant correlations with BMI

($r = -0.29$, $P = 0.013$), insulin ($r = -0.26$, $P = 0.026$), and HOMA-IR ($r = -0.26$, $P = 0.026$).

Conclusion: Hypertensive patients with lower retinal A/V ratio had higher BMI and higher insulin and HOMA-IR levels, suggesting the importance of glycemic control and body weight in this population.

MP-24 | Acute effects of dietary nitrate intake on central hemodynamics and endothelial function in treated hypertensive patients

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Introduction: The eating habits influence several mechanisms involved with hypertension pathogenesis and cardiovascular risk factors, and has been considered the main modifiable environmental factors.

Objective: To evaluate the acute effects of inorganic nitrate through the intake of beetroot juice on central hemodynamic parameters and endothelial function in treated hypertensive patients.

Methods: A randomized, placebo-controlled, crossover study was performed in hypertensive patients of both sexes, aged between 40 and 70 years, submitted to a single alternate intake of 500 mL of beet juice (nitrate) or 500 mL of mineral water (control). Before and after each intervention, patients (n = 37) were submitted to clinical evaluation, radial artery applanation tonometry (SphygmoCor) for measurement of aortic systolic pressure (aoPS), augmentation pressure (AP), ejection duration (ED) and subendocardial viability ratio (SEVR); and evaluation of microvascular reactivity (Laser Speckle Contrast Image) through the percentage of increase in perfusion during post-occlusive reactive hyperemia.

Results: The mean age was 59 ± 7 years and mean systolic and diastolic blood pressures were 142 ± 10/83 ± 9 mm Hg. There was a significant increase in AP (19 ± 7 vs 21 ± 9 mm Hg, $P = 0.009$) and aoSP (137 ± 15 vs 143 ± 14 mm Hg, $P = 0.003$) in the control group, while there was attenuation of this increase in AP (17 ± 9 vs 19 ± 8 mm Hg, $P = 0.278$) and aoSP (132 ± 15 vs 136 ± 16 mm Hg, $P = 0.061$) in the beetroot group. In the control group, there was no significant change in SEVR (155 ± 28 vs 160 ± 28, $P = 0.080$), although with a reduction in ED (35 ± 4 vs 34 ± 4 ms, $P = 0.019$). However, there was a significant reduction in ED (37 ± 4 vs 34 ± 4 ms, $P < 0.001$) and an increase in SEVR (149 ± 25 vs 165 ± 30, $P < 0.001$) in the beetroot group. The % increase in perfusion (155 vs 159%, $P = 0.042$) was significantly increased in the beetroot group, which was not observed after the control intervention (177 vs 148%, $P = 0.722$).

Conclusion: The ingestion of beetroot juice by hypertensive patients resulted in attenuation of central pressure and improvement of endothelial function, which was associated with greater subendocardial viability and higher performance in myocardial contraction.

MP-25 | Profile of cardiovascular patients attended in Belo Horizonte's physiotherapy school

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Introduction: According to the World Health Organization (WHO), chronic non-communicable diseases are the leading cause of mortality in the world. Its management and control require knowing risk factors, target audience, and resources prioritizing secondary prevention within the level of health care.

Objective: To identify the socio-demographic, epidemiological and pharmacological profile of patients treated in the Cardiovascular Physiotherapy sector of a School Clinic of Belo Horizonte.

Method: This is a retrospective analytical/descriptive study approved by the Research Ethics Committee under CAEE: 0023.0.191.000-10. There were 53 preselected medical records, 3 were excluded due to the lack of necessary information. There remained 50 medical records of patients of both genders (32 females and 18 males), presenting some cardiovascular disease/alteration and with regular physical therapy follow-up performed in a School Clinic of Belo Horizonte from August 2008 to November 2009.

Results: The present study showed that the number of women was predominant compared to the number of men, 32 and 18 respectively. 50% of patients were married and 83.33% of men and 34.37% of women. The average age was (57 ± 11.22 years). Regarding the profession of participants, 50% of men were retired and 31.25% of women were housewives. The total education of the patients was 72% with incomplete elementary school. Regarding the epidemiological profile, 62% of the cases presented with hypertension, followed by Diabetes Mellitus and Congestive Heart Failure with 10% and Arrhythmia with 8%. Regarding the antihypertensive drugs used by the patients, 19 patients used thiazide diuretics (hydrochlorothiazide, chloran) and 13 patients used ACE inhibitor (captopril) as a priority.

Conclusion: The development of this study made it possible to characterize the profile of the 50 patients in the physiotherapy sector of one School Clinic of Belo Horizonte. The target audience received at the referred School Clinic is primarily female, married, approximately 57 years old, from home, with incomplete primary education, with hypertension, using thiazide diuretics and ACE inhibitors.

MP-26 | Nutritional profile and analysis of sodium intake in women treated at a hypertension outpatient clinic

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Introduction: Systemic arterial hypertension (SAH) presents particularities in females, such as hypertensive disorders of pregnancy (HDP) in young women that have an impact on the future profile of SAH.

Objective: To describe the nutritional profile, sodium intake, blood pressure (BP) behavior and complications in hypertensive women with the previous history of HDP.

Methods: A cross-sectional study with information collected from women attending an outpatient clinic of a cardiology hospital with the anthropometric assessment [weight, height, waist circumference (WC), body mass index (BMI) and waist/height index (WHI).], 24-hour urinary sodium (NA24h), added sodium intake, systolic (SBP) and diastolic (DBP) blood pressure, previous diagnosis of HDP and cardiovascular comorbidities.

Results: The total group of 31 patients was divided according to the presence (GrHDP +, n = 17) or absence (GrHDP-, n = 14) of HDP. There were no differences between groups regarding BMI values (31.64 ± 6.74 vs 33.03 ± 7.46 kg/m^2), WC (101.46 ± 14.34 vs 101.62 ± 14.71 cm), WHI (0.64 ± 0.09 vs 0.63 ± 0.308), SBP (160 ± 30 vs 170 ± 34 mm Hg), DBH (93 ± 12 vs 103 ± 23 mm Hg), NA24h (4.16 ± 1.71 vs 4.46 ± 1.51 g) and sodium intake (2.32 ± 0.79 g vs 2.11 ± 0.87 g). Compared to GrHDP-, GrHDP + patients were younger (50 (40-55) vs. 65 (55-71) years; $P < 0.01$) and had higher prevalence of stroke (n = 5 (29.41%) vs. n = 0; $P = 0.03$). Positive and significant linear correlations were found ($P < 0.05$) in GrHDP- group = BMI with WC ($r = 0.94$) and with WHI ($r = 0.95$); NA24h with SBP ($r = 0.79$), and with DBP ($r = 0.81$) and with added sodium intake ($r = 0.61$); in GrHDP+ group = BMI with WC ($r = 0.91$) and with WHI ($r = 0.91$); NA24h with SBP ($r = 0.82$), with DBP ($r = 0.68$) and with sodium ($r = 0.76$), and between added sodium intake and SBP ($r = 0.58$) and DBP ($r = 0.63$).

Conclusion: (1) Excessively high values of anthropometric parameters, sodium intake, and BP were observed in hypertensive women regardless the presence of previous HDP. (2) Hypertensive women with previous HDP were younger and had a higher prevalence of stroke than hypertensive women without HDP. (3) Therefore, nutritional actions can prevent and minimize risks associated with hypertension in women, especially in those with HDP.

MP-27 | **Effect of 10 cardiovascular physiotherapy sessions in patients with systemic arterial hypertension**

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Introduction: In Brazil, the prevalence of Systemic Arterial Hypertension (SAH) varies from 22.3% to 43.9% of the population and national and international epidemiological data show that the elevation of blood pressure is closely related to the aging process and influence the increase. cardiovascular risk and should be treated.

Objectives: To analyze the evolution of hypertensive patients in ten cardiovascular functional rehabilitation sessions regarding the parameters of Resting Heart Rate (HRR), Systolic Blood Pressure (SBP), Diastolic Blood Pressure (DBP) and Mean Blood Pressure (MBP), where MBP = SBP + (DBP × 2)/3 and determining which variable would be significant to the changes caused by treatment.

Method: This is a retrospective analytical/descriptive study approved by the Research Ethics Committee. Fifty medical records of patients of both genders with a mean age of (57 ± 11.22 years) were selected, presenting some cardiovascular disease/alteration and with regular physical therapy follow-up performed at a School Clinic for at least 10 consecutive sessions. from 2008 to November 2009. The sessions were performed twice a week, in 50 minutes each, thus divided into 5 to 10 minutes of "preparation" (stretching and calisthenics exercises); 20 to 30 minutes of "aerobic exercise/strength/endurance" (using Treadmill, Exercise Bike, Circuit and Elliptical Trainer, respecting the training interval determined for each heart disease regarding their HRmax) 5 to 10 minutes of "recovery" (stretching, orientation, relaxation or anti-inflammatory and analgesic preventive activities with ultrasound and cryotherapy).

Results: The resting heart rate (HRR) was initially (74.58 ± 3.12 bpm). After 10 sessions (78.79 ± 2.71 bpm) there was no statistical difference ($P > 0.05$). Systolic blood pressure (SBP) on the first day (134.9 ± 9.15 mm Hg) and after 10 sessions (126.6 ± 10.51 mm Hg) showed no significant variation ($P > 0.05$). Initial diastolic blood pressure (DBP) (82.00 ± 4.36 mm Hg) dropped to (79.25 ± 3.2 mm Hg) on the tenth day, with no significant variation ($P > 0.05$). The initial mean arterial pressure (MAP) was (89.64 ± 6.75 mm Hg) and after the 10th day of treatment (45.68 ± 1.86 mm Hg) having a significant reduction ($P < 0.0001$).

Conclusion: Through the data observed in the present sample, the hemodynamic variable that significantly reduced in hypertensive patients undergoing 10 sessions of Cardiovascular Physiotherapy was MAP.

MP-28 | **Nutritional status and renal function of quilombolas remaining in Maranhão: Is there an association?**

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Introduction: Studies have shown that the reduction in glomerular filtration rate (GFR) has occurred in parallel with the increase in obesity. Chronic kidney disease has a higher prevalence in black individuals.

Objective: To evaluate the association between nutritional status and renal function of quilombolas in Maranhão.

Methods: Cross-sectional study conducted in 32 remaining quilombola communities in the municipality of Alcântara-MA. Anthropometric data included: weight, height and waist and hip circumferences. Nutritional status was classified as follows: body mass index (BMI), waist circumference (WC), waist-hip ratio (WHR), waist-height ratio (WHR), conicity index (CI) and visceral adipose tissue (VAT). GFR was estimated from the formula of the CKD-EPI study, using serum creatinine and cystatin C values as a reference for the calculation. To compare nutritional indicators according to sex, the chi-square test was applied. Variance analysis was used to compare the means of anthropometric indicators according to GFR and Pearson's correlation coefficient to assess the correlation between GFR and anthropometric indicators. The study was approved by the Research Ethics Committee (Consubstantiated Opinion 41492/2012).

Results: Of the 1526 remaining quilombolas studied, 89.5% were black or brown, 51.2% were women, 88.6% belonged to economic classes D and E and 83.8% lived without fixed income or received up to 1 year minimum wage. Clinical investigation showed a prevalence of 29.2% of hypertensive, 8.5% of diabetic and 3.1% with reduced GFR. The prevalence of overweight was 45.6%, according to BMI. Women had a higher prevalence of overweight (56.6% vs 33.8%; $P < 0.001$) and abdominal obesity, WC (52.3% vs 4.3%); WHR (76.5% vs 5.8%); waist-height ratio (82.3% vs 48.9%) and VAT (27.1% vs 14.5%) ($P < 0.001$). When the mean nutritional indicators were compared according to the GFR, the higher the mean value of the nutritional indicators the lower the GFR ($P < 0.05$). The correlation between GFR and anthropometric indicators showed statistically significant negative correlations ($P < 0.001$).

Conclusion: The glomerular filtration rate decreased with the increase of the mean values of nutritional indicators that assess abdominal obesity, regardless of gender. Anthropometric indices were negatively correlated with GFR.

MP-29 | Physical training associated with perindopril treatment reduces arterial stiffness and blood pressure through modulation of cofilin-1 protein in aorta of spontaneously hypertensive rats

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Introduction: An important non-pharmacological strategy for controlling hypertension is aerobic physical training because of its ability to reduce blood pressure (BP) and arterial stiffness, which is an important predictor of cardiovascular mortality. On the other hand, angiotensin converting enzyme inhibitors (ACEi) are widely used to improve vessel compliance, however, almost nothing is known about the mechanisms induced by T and/or ACEi in reducing arterial stiffness.

Objective: This study investigated the effects of aerobic training, associated or not with perindopril treatment, on proteins involved in arterial stiffness process in spontaneously hypertensive rats (SHR).

Methods: Forty SHR and 10 Wistar rats (W) underwent treadmill training (T, 60% of maximum capacity, 5 days/week, 60 days) or remained sedentary (S). All rats were treated with perindopril (P, 3 mg/kg, daily, *via gavage*) or water (control, C). Analysis of pulse wave velocity (PWV), systolic BP (SBP), vessel sympathetic nerve activity (ANS, LF abs, mm Hg 2) was performed and then aortic artery was collected for proteomic analysis.

Results: SHR had higher PWV (49%) and SBP (70%) than W. Groups treated with perindopril (SP), trained or combined (TP) had lower PWV values (−36%, −21% and −46). %) as well as SBP (−37%, −27% and −30%, for SP, TC and TP, respectively, $P < 0.05$), compared to SC. ANS to vessels was increased in SC group (+ 64.33%, vs W) and both SP and TC groups presented lower ANS to vessels values when compared to SC (−76% and −53%, respectively). The ANS to vessels positively correlated with PWV ($r = 0.6727$, $P < 0.05$) and PWV with SBP ($r = 0.8162$, $P < 0.05$). Proteomic analysis identified 42 proteins that were differently expressed in the aorta between SC × W (21 were up and 21 were downregulated). Among the up-regulated proteins, Cofilin-1 stands out, which was significantly 1.08 times more expressed in SC group? Only in trained groups (TC and TP) this protein was less expressed (0.96 and 0.92, respectively).

Conclusion: Since Cofilin-1 contributes to the increase vascular smooth muscle contraction by α-actin polymerization, through cdc42 activation, this work suggests that cofilin-1 modulation in aortic wall could be one of the mechanisms responsible for T-induced arterial stiffness reduction in SHR.

Key words: Pulse wave velocity, aorta, hypertension.

MP-30 | Low-intensity laser therapy on vascular reactivity and blood pressure in police officers

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Introduction: Police officers (PO) are exposed to a stressful environment and are at greater cardiovascular risk. In addition, stress has a direct effect on vascular pathophysiology and may affect endothelial function. Arterial stiffness, endothelial dysfunction, and exacerbated increase in blood pressure upon exercise are markers of cardiovascular risk. Previous experimental studies have shown that low-intensity laser therapy (LILT) promotes increased flow-mediated dilation (FMD).

Objective: Thus, we hypothesize that LILT improves endothelial function and decreases blood pressure response to maximum exercise in PO.

Methods: We studied PO, submitted to LILT (PO/LILT, n = 11, 39.4 ± 2 years; 91.9 ± 5 kg) for 6 months, and a matched group for age and weight that remained without any therapy as a control group (C, n = 7, 38.2 ± 3 years; 83.8 ± 3 kg). LILT was applied to the sublingual region twice a week, with maximum intervals of 3 days between applications. Pre and post LILT, endothelial function was evaluated by brachial artery (FMD) and systolic and diastolic blood pressure (BP) were analyzed during cardiopulmonary exercise test.

Results: After intervention, LILT increased FMD, whereas C did not change (Δ of increase = 8.34 ± 1 and 0.33 ± 1%, respectively, $P = 0.001$). Interestingly, BP response to maximum exercise decreased only in PO submitted to LILT (pre vs. post, SBP = 202 ± 4 vs. 177 ± 4 mm Hg, $P = 0.02$; DBP = 106 ± 2 vs. 90 ± 2 mm Hg, $P = 0.01$), and did not change in the PO/C group (pre vs. post, SBP = 200 ± 13 vs. 179 ± 3 mm Hg, $P = 0.19$; DBP = 106 ± 4 vs. 99 ± 3 mm Hg, $P = 0.22$).

Conclusion: Our data demonstrated that LILT could significantly increase vascular reactivity also in humans, which seems to explain, at least in part, the decreased blood pressure response to exercise. This important adaptation can provide cardiovascular protection in response to physical and mental stress, a frequent condition in the role of police officer. Additionally, LILT may be a therapeutic alternative to prevent cardiovascular risk.

MP-31 | **The control and adherence to hypertension treatment showed optimized in specialized outpatient clinic**

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Introduction: Hypertension is a global public health issue, holding high prevalence and low rates of control.

Objectives: To evaluate the control of hypertension, adherence to treatment and associated variables.

Methods: A cross-sectional study was performed in a hypertension outpatient clinic from a Tertiary Teaching Hospital in São Paulo/SP. Inclusion criteria: age ≥ 18 years old, in treatment for at least 6 months and also that accepted to participate signing the Informed Consent Form. Patients diagnosed with secondary hypertension, pregnant and unable to answer the interview were excluded. The sample calculation based on 60% of control rate and 5% of significance level was 253 participants. The control of blood pressure was SBP <140 and DBP <90 mm Hg. The adherence to treatment was assessed by the eight-item Morisky Medication Adherence Scale (MMAS-8). Biosocial data, risk factors, habits, lifestyles, anthropometric measurements, comorbidities and psycho-emotional characteristics were evaluated. Three blood pressure measurements were performed using automatic validated equipment. Through an analysis multivariate by the Logistic Regression, the significance level was ≤ 0.05.

Results: The hypertensive features were: 65.2 ± 13.1 years, 60.9% were female, 63.2% were white, 52.8% were married, 44.2% had completed high school studies, BMI 29.55 ± 5.3 kg/m^2 (81% overweight/obesity), 47.4% had a C2 socioeconomic classification, 55.7% had never smoked, 60% hadn't drunk alcohol currently, 84.5% hadn't had the most common mental disorders and 39.9% had practiced physical activity irregularly. The control of BP was 68.8% and 83% had a high adherence to treatment. When using the established criterion by the last American Guidelines of Hypertension (SBP <130 and DBP <80 mm Hg), only 12.2% were controlled. When it comes to the medical history: Dyslipidemia (71.9%), Diabetes Mellitus (41.1%), Chronic Kidney Disease (19%), Stroke (8.7%), Coronary Insufficiency (13.5%), Arrhythmia (9.1%), Neoplasia (15.42%) and Depression (6.3%). The average of SBP was 138.6 ± 12.1 mm Hg and SBP was 80.8 ± 7.2 mm Hg. In the final template, the variables associated to the control were: marital status (OR = 2.315; IC95% = 1.040–5.126) and Sedentary IPAQ (OR = 0.444; IC95% = 0.194–0.969).

Conclusion: The control of blood pressure was more elevated than data from national literature, although not coincident to the adherence to the treatment evaluated indirectly.

MP-32 | **Inspiratory muscle training in central blood pressure and barorreflex sensitivity of healthy young people**

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Introduction: Inspiratory muscle training (IMT) has been used as a non-pharmacological tool in different contexts. This type of exercise consists in forced inspirations, which exerted by the inspiratory muscles, increase the nerve afferences to the bulbar respiratory center, contributing to the cardiovascular reflex responses, in which the increase of the ventilatory measures evaluated by the chemoreflex highlight the interaction between the IMT and the mechanisms involved in the cardiac system.

Objective: Thus, the aim was to evaluate whether IMT alters central arterial pressure and spontaneous baroreflex after a mental stress test in healthy young people.

Methods: In the protocol, fifteen young people aged 18 to 30 years old were selected, classified as eutrophic by bioimpedance analysis and sedentary by the International Physical Activity Questionnaire (IPAQ). Thus, they underwent the acute protocol (IMT-1) performed in a 15 minutes session of IMT, and the prolonged (IMT-2) in which 7 sessions of 15 minutes of IMT were performed at a moderate intensity (30% IP max). For the exercise training intensity prescription, the maximal inspiratory pressure (IP max) was evaluated by the manovacuometer, followed by the measurements of central arterial pressure and pulse wave amplification index (AIx) by radial artery applanation tonometry and peripheral artery pressure by digital sphygmomanometer. The α-index was calculated by the beat-to-beat record by photoplestimography and the mental stress test was performed using the Stroop Color and Word test.

Results: After the IMT-1 and IMT-2 protocol, no reduction in peripheral systolic blood pressure (pSBP) was observed when compared to baseline (baseline: 111 ± 9; IMT-1: 109 ± 8 and IMT-2: 112 ± 12 mm Hg) and the same was observed in peripheral diastolic blood pressure (pDBP) (baseline: 69 ± 7; IMT-1: 68 ± 5 and IMT-2: 68 ± 8 mm Hg). Regarding the central measures, the central systolic blood pressure (cSBP) and the central diastolic blood pressure (cDBP) also showed no difference when compared to the initial moment (baseline: 98 ± 6; 71 ± 6; IMT-1: 96 ± 7; 69 ± 5 and IMT-2: 97 ± 9 70 ± 8 mm Hg, respectively). Normalized AIx (basal: 13.4 ± 11; IMT-1: 9.7 ± 12 and IMT-2: 10.5 ± 13% 75 bpm), as well as spontaneous baroreflex analyzed by the α-index (basal: 10 4 ± 22; IMT-1: 13.5 ± 27; IMT-2: 6.3 ± 9 ms/ mm Hg) were also no different after the IMT protocols.

Conclusion: Therefore, the results suggest that acute or prolonged IMT does not alter the central or peripheral hemodynamic profile, as well as the baroreflex sensitivity of healthy young people.

MP-33 | Study of influential variables in the therapeutic control of hypertensive elderly in a public health unit of Ribeirão Preto

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Introduction: The elderly are part of the population that is currently growing the most, presenting a higher risk for the development of cardiovascular diseases and a higher number of comorbidities, such as Systemic Arterial Hypertension (SAH).

Objective: To analyze the influence of sociodemographic and anthropometric variables in the therapeutic control of hypertensive elderly in a Public Health Unit of Ribeirão Preto-SP.

Method: The observational, descriptive, prospective and cross-sectional design. The series consisted of 196 elderly people (60–79 years) with SAH, according to the criteria of the Joint National Committee (JNC VIII, 2014) randomly selected from 782 patients seen in 2013. Data collection occurred between August 2014 and June 2015, after approval by the Research Ethics Committee (Protocol No. 341/2014).

Results: There was a predominance of women (127; 64.8%), with a mean age of 69.4 ± 4.85 years, in the 70-79 age group (50.5%) and in the white color (111; 56.6%). The mean systolic blood pressure (SBP) of the patients studied was 136.35 ± 20.85 mm Hg and the mean diastolic blood pressure (DBP) was 77.65 ± 12.94 mm Hg. 36 elderly (18.4%) did not have controlled blood pressure (BP) (≤140 × 90 mm Hg). Patients took 1 to 7 antihypertensive drugs (mean: 3.20 ± 1.24) and 72 (36.73%) used 4 or more medications. The mean time of use of antihypertensive was 18.24 ± 11.16 years. The statistical correlation of the numerical and categorical variables studied (age, categorization of age group, smoking and/or alcohol consumption status, years of study, categorization of years of study, practice of physical activity, reported meantime of SAH, categorization of SAH time, Body Mass Index (BMI), categorization of BMI, waist circumference (WC), categorization of WC, waist-hip ratio (WHR), categorization of WHR, neck circumference (WC), categorization of WC and number of antihypertensive drugs used) with mean SBP and DBP and BP category (SBP), was not significant.

Conclusion: In the population studied, it was observed that even with a high daily amount of antihypertensive, almost 20% did not have their BP controlled. There was statistical significance between the correlation between gender and BP (*P*-value = 0.015), with less control of BP in males and also in relation to color with BP (*P*-value = 0.004), with less control of BP in black color. The correlation of PC (non-categorized) with AP according to the Mann Whitney test was significant ($P = 0.032$).

MP-34 | Higher central pressure and endothelial dysfunction in patients with resistant hypertension

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Introduction: Studies have shown greater arterial stiffness and endothelial dysfunction in resistant hypertensive patients when compared to controlled hypertensive patients, but the difference in relation to other hypertensive patients without pressure control is unknown.

Objective: To evaluate the relationship between vascular function and difficulty in the controlling of hypertension.

Methods: In this cross-sectional study, hypertensive patients, age between 45 and 65 years, were submitted to office blood pressure (BP) measurement, 24h-ambulatory BP monitoring (ABPM), laboratory and 24 hours urine tests, central hemodynamic parameters, pulse wave velocity (PWV; Complior Analysis) and microvascular reactivity in post-occlusion reactive hyperemia (PORH; Pericam).

Results: Patients (n = 38) were divided into a group with resistant hypertension (RH; n = 15) and a group with uncontrolled hypertension (UH; n = 23). There was no significant difference in age (55 ± 6 vs 59 ± 7 years, $P = 0.077$), Framingham risk score (FRS) (15.5 ± 8 vs 19.7 ± 12%, $P = 0.252$), body mass index (29.7 ± 4 versus 28.5 ± 5 kg/m^2, $P = 0.427$), C-reactive protein (0.6 ± 0.5 vs. 1.0 ± 3.1 mg/dL, $P = 0.601$), estimated glomerular filtration rate (CKD-EPI, 86 ± 18 vs 88 ± 17 mL/min/1.73 m^2, $P = 0.633$) and in the aldosterone/renin ratio (ARR, 8.7 ± 11 vs 10.1 ± 14, $P = 0.767$). There were also no significant differences in proteinuria (152 ± 105 vs 161 ± 112 mg, $P = 0.817$). The groups were similar in office systolic (SBP) and diastolic BP (143 ± 16/87 ± 10 vs 142 ± 9/86 ± 9 mm Hg, $P > 0.05$) and in ABPM (129 ± 16/81 ± 12 vs 132 ± 12/81 ± 10 mm Hg, $P > 0.05$). During PORH, the RH group presented lower variation in the area under the curve (AUC) (1116 ± 582 vs 1546 ± 682 APU/s, $P = 0.046$) and a lower percentage of AUC increase (69 ± 33 vs 103 ± 59 %, $P = 0.031$). There was no difference in PWV (10.1 ± 2 vs 10.6 ± 1 m/s, $P = 0.410$), but aortic SBP was significantly higher in the RH group (149 ± 21 vs 133 ± 15 mm Hg, $P = 0.026$). The RH group presented a significant correlation between PWV and SBP ($r = 0.77$, $P = 0.001$) and between ARR and FRS ($r = 0.86$, $P < 0.001$), which did not occur in the UH group.

Conclusion: In this sample, patients with RH presented greater endothelial dysfunction and higher central pressure than the other patients with UH, increasing the cardiovascular risk that was correlated with higher ARR in these individuals. The relationship between arterial stiffness and SBP was more evident in RH patients, which may contribute to greater difficulty for BP control in these subjects.

MP-35 | **Prevalence of non-adherence to pharmacological treatment of arterial hypertension in a primary care ambulatory in Salvador-Bahia-Brazil**

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Introduction: The hypertension is a chronic and multifactorial disease in which there is a sustained increase in the pressure levels to values of systolic blood pressure (SBP) major or equal 140 mm Hg and/or 90 mm Hg of diastolic blood pressure (DBP). Considering the chronicity in this condition, it's necessary to maintain the pharmacological and non-pharmacological treatment for all life. In this context, the adherence therapy is a great challenge to be faced, because there is a relevant number of uncontrolled hypertensive patients, same under the therapeutic use.

Objective: To investigate the prevalence of non-adherence to hypertension pharmacological treatment in a population of Salvador-Bahia.

Method: This is a cross-sectional study, realized between May and August 2018, with sample composed of 71 hypertensive individuals treated pharmacologically, attended in a primary care ambulatory in Salvador-Bahia. We evaluated in these patients the non-adherence to hypertension treatment using the Morisky-Green test (MGT), composed of four questions. The patients are considered non-adherent to medical treatment when they response affirmatively at least one question. Data were analyzed in a descriptive manner. The investigation was started after the Ethical Committee analysis, number 1.968.203 and informed consent term signature by participants.

Results: The data obtained revealed that the prevalence of non-adherence to the pharmacological treatment in hypertension, TMG based, was 54.6% (39) of study patients. The adherent patients to pharmacological treatment reached 45.1% (32) of studied sample. In relation to TMG positive answers frequency, 87.2% of non-adherent patients reported that forgot using the hypertensive agents. In the same context, 61.5% considered themselves not careful with medication use, 23.1% stopped using medicines when feeling better and 5.1% stopped when feeling worst.

Conclusion: Our data show that the prevalence of non-adherents was higher than observed in adherent patients. New investigations are necessary to increase the knowledge about favorable factors for adherence/non-adherence, to improve therapeutic outcomes in hypertensive patients.

MP-36 | **Association between blood pressure and body mass index in public school adolescents – A pilot project**

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Introduction: Risk factors of cardiovascular disease, such as hypertension, have been increasingly prevalent in Brazilian adolescents, especially in sedentary or overweight ones. A national systematic review published in 2016 showed that 9% of Brazilian adolescents were diagnosed with hypertension, and the highest index was searched in Rio Grande do Sul, which were 12.4% (Gonçalves et al., 2016). Hypertension is usually asymptomatic in adolescents, making early identification difficult; however, the diagnosis, treatment and control of high blood pressure are fundamental for the reduction of cardiovascular events.

Objective: To identify the prevalence of hypertension and its relationship with body mass index in adolescents.

Methods: This is a clinical registry cross-sectional study, with high school students from a public school in Porto Alegre, from 14 to 18 (incomplete) years old. To measure blood pressure (BP) an electronic device (OMRON HEM 705 CP) was used following the recommendations of the Brazilian Society of Hypertension Guidelines. The classification of hypertension was defined by the percentile of BP according to the age, sex and height. Body Mass Index (BMI) was classified in the Anthro Plus software for adolescents. The REDCap software was used to insert variables and data analysis. The association between BP and BMI classification was analyzed using the SPSS 23.0 software, using the Chi-square test. This study was approved by the research ethics committee/IC-FUC UP 5449/17.

Results: Eighty adolescents with a mean age of 15.8 ± 0.77 years were included; prevailing females (77.5%). As a result of BP values measurements, 42 students (52.5%) had normal BP, 15 (18.8%) had high BP, 17 (21.3%) had stage 1 hypertension and 6 (7.5%) presented stage 2 hypertension. According to BMI, 54 (67.5%) were eutrophic, 14 (17.5%) overweight and 12 (15%) were obese. There was an association between the prevalence of overweight and obesity with stage 1 hypertension ($P < 0.019$).

Conclusions: The HASCA Pilot Project identified elevated BP associated with overweight and obesity in adolescents. These BP results will be confirmed in another phase of the study. Awareness campaigns to measure BP in children and adolescents are needed.

MP-37 | Post-exercise blood pressure and autonomic responses after aerobic exercise following anodal tDCS applied over the medial prefrontal cortex

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Introduction: Transcranial direct current stimulation (tDCS) is acknowledged to modulate autonomic cardiac activity and hemodynamic responses at rest and during exercise. However, its potential to optimize post-exercise hypotension (PEH) has not been investigated.

Objective: This study investigated the effects of anodal tDCS applied over the medial prefrontal cortex (mPFC) upon blood pressure (BP) and heart rate variability (HRV) throughout 60 minutes following acute aerobic exercise.

Methods: Fifteen young men (27.5 ± 5.2 years; 72.9 ± 8 kg; 170 ± 0.1 cm; 124.1 ± 1.9/67.7 ± 2.1 mm Hg) underwent three counterbalanced experimental sessions: (a) anodal tDCS+exercise (tDCS); (b) sham stimulation+exercise (SHAM); (c) non-exercise control (CONT). The exercise consisted of 50-min cycling at 65–70% heart rate reserve. BP and HRV were assessed during 60-min post exercise.

Results: Mean reduction in systolic BP occurred after tDCS vs. SHAM (−4.1 mm Hg; $P = 0.03$) and CONT (−5.8 mm Hg; $P = 0.003$), and in MAP vs. CONT (−3.0 mm Hg, $P = 0.03$). Parasympathetic activity lowered after tDCS and SHAM vs. CONT, as respectively reflected by R-R intervals (−328.1% and −396.4%; $P = 0.001$), SDNN (−155.7% and −193.4%; $P = 0.006$), and pNN50 (−272.3% and −259.1%; $P = 0.021$). There was a clear tendency of increased sympathovagal balance vs. CONT ($P = 0.387$) after SHAM (+246.3%), but not tDCS (+25.9%).

Conclusion: An aerobic exercise bout preceded by tDCS applied over mPFC induced PEH in normotensive men. Parasympathetic activity lowered, while sympathovagal balance increased after both tDCS and SHAM vs. CONT. However, these responses seemed to be tempered by anodal stimulation, which might help explain the occurrence of PEH after tDCS and not SHAM. These findings warrant further research on the role of tDCS within exercise programs aiming at BP management.

MP-38 | Nursing diagnosis in subacute bacterial endocarditis through hemodyalysis contamination: Case report

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Introduction: This is a descriptive exploratory case management, being performed in a patient with subacute bacterial endocarditis due to hemodialysis contamination in the context of hospitalization, on hemodialysis treatment in Women's Medical Clinic, of a University Hospital in the city of Niterói, State of Rio de Janeiro.

Objective: To identify the main diagnoses according to the International Classification for Nursing Practice.

Methods: Data were collected during the theoretical-practical teaching activity of the Undergraduate Nursing Course student of Fluminense Federal University. As a guiding instrument of the Nursing Process, it was used a clinical interview script, followed by the application of the physical exam and the records of clinical evaluations field diary, nursing evolutions and complementary exams from 09/19nd/2018 to 22/09nd/2018.

Results: Female patient, 40 years old, with chronic renal disease and hypertension. She was admitted to the emergency department with hyperthermia, fatigue, tachycardia and dyspnea, being referred to the inpatient unit. Several imaging, laboratory and clinical evaluations were performed by the multidisciplinary team. By that time, she was on the 14th day of hospitalization, with a medical diagnosis of subacute bacterial endocarditis caused by the Gram-positive bacteria Enterococcus faecalis.

Discussion: Subacute bacterial endocarditis is a pathology characterized by colonization of previously abnormal heart valves by bacteria that invades the circulatory system, including hemodialysis. The pathogen leads to an ulcerative, necrotizing and embolizing valve lesion whose treatment may require surgical intervention. To better assist, Nursing uses the Nursing Process: Assessment, Nursing Diagnosis, Implementation and Evaluation. Thus, it was possible to identify the main diagnoses: impaired cardiovascular function, related to involvement of cardiac valves by pathogens; Risk of embolization related to heart valve infection, Cardiac output, Impaired perfusion, impaired renal function related to Chronic Kidney Failure and Risk of infection.

Conclusions: Systematic assistance made possible to intervene according to the identified nursing diagnoses. It is observed that the care included diagnoses related to cardiac pathology, even those related to the hemodialysis procedure.

The Nursing Process provided individualized care, centered on the affected human needs, and guided decision-making on the most appropriate interventions to the real needs presented by the patient.

MP-39 | Effect of aerobic training on the blood pressure circadian pattern in dialytic patients

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Introduction: Hypertension is a highly prevalent clinical condition in hemodialysis patients and gives them a worse cardiovascular prognosis due to the high risk of events such as heart failure, stroke, peripheral arterial disease, and coronary insufficiency. Dipper is the individual who manifests a physiological reduction in BP value during sleep compared to wakefulness; if not, the individual is classified as non-dipper. The circadian pattern of hypertension in these patients is often non-dipper and some strategies such as chronotherapy (anti-hypertensive medications at night), stricter ultrafiltration, and decreased sodium intake, reverse this pattern reducing cardiovascular risk. The literature points out that Aerobic Training (AT) promotes post-exercise hypotension; however, further evidence is sought regarding the effect of AT on circadian behavior in the dialytic population specifically.

Objective: To evaluate the effect of moderate-intensity aerobic training on the circadian pattern of blood pressure in patients undergoing hemodialysis.

Methods: 14 patients undergoing dialysis treatment were allocated into two groups, active (AG) and control (CG) with 7 individuals (4 women and 3 men) each. This study was conducted at the Centro de Prevenção de Doenças Renais, the Hospital da Universidade Federal do Maranhão and the Centro de Nefrologia do Maranhão. AG subjects underwent a 12-week AT protocol with intensity of 60% to 80% of maximum heart rate. Ambulatory Blood Pressure Monitoring (ABPM) was performed at Baseline and Post 12 weeks for both groups. Data normality was tested using the Shapiro-Wilk test, and for characterization between groups we adopted the Student and Wilcoxon paired t-test for unpaired variables. Statistical analysis between groups was performed using the *two-way* ANOVA with post-hoc Student Newman-Keulls.

Results: Systolic Blood Pressure at sleep period decreased when comparing baseline and post-intervention values on Day-1 (120.80 ± 10.85 mm Hg to 109.00 ± 15.00 mm Hg) and on Day-2 (127.20 ± 15.82 mm Hg to 110.70 ± 16.40 mm Hg). On Day-2, post-intervention values showed a reduction in wakefulness compared to sleep period (125.50 ± 17.03 mm Hg to 110.70 ± 16.40 mm Hg, respectively).

Conclusion: The moderate-intensity AT protocol promoted an improvement in circadian behavior at 44 hours evaluated by ABPM.

MP-40 | Concordance among different methods of blood pressure categorization: Ambulatory measuring, ABPM, and recommendations from European hypertension society

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Introduction: Evidence shows divergent results of white coat hypertension (WCH), non-controlled WCH, masked hypertension (MH) and non-controlled masked hypertension prevalence, and contradictory results of target organ injuries presence. In 2014, the update of the European guideline of ABPM recommended the utilization of the aggregated ambulatory blood pressure to classify the phenotypes of BP.

Objective: To evaluate the concordance among 3 classification criteria of 4 blood pressure categories in non-treated hypertension suspected participants and treated hypertensive subjects.

Methods: 581 hypertensive suspects were included. None was taking anti-hypertensive medications. One equipment Microlife – BP3AC1-1PC (Onbo Electronic Co., Shenzen, China), was used to measure the CBP, a conjunct of 3 BP measures in sequence. Then, all of them performed ambulatory blood pressure monitoring (ABPM) for 24 hours, using a Dyna-Mapa monitor (Cardios, São Paulo, Brazil). The sample was classified into 4 categories of BP: NT (true and controlled normotension), WBP (white coat blood pressure), MH (masked hypertension and non-controlled masked hypertension), HTS (true and non-controlled hypertension). The concordance of 3 different criteria of ambulatory BP was evaluated: BPD, 24hs BP and ESH-2014 (24BP, BPD, and nocturnal BP, in conjunction). The OBP was used 140 and 90 mm Hg as cut value and for ambulatory BP the values from the last ABPM European guideline. To the evaluation of the concordance the pondered kappa (k) was used with confidence interval.

Results: Data from 581 patients was analyzed, 375 (62%) with new hypertension and 222 (38%) treated hypertensive subjects. The pondered kappa of BPD vs ESH-2014, k = 0.87 (0.85–0.89), BPD vs 24hBP k = 0.94 (0.93–0.96), 24hBP vs ESH-2014 k = 0.90 (0.89–0.93). The concordance of BPD with ESH-2014 was significantly less than the other comparisons, BPD to 24hBP and 24hBP to ESH-2014. All the comparisons showed value of kappa above 0.8, showing a very good concordance among the criteria evaluated.

Conclusion: This study shows that using an ambulatory blood pressure precise set in a pattern, is observed a very sharp concordance among the criteria used of ambulatory blood pressure, demonstrating that the precise BPD can be more important to the correct categorization than the choice of the ambulatory BP criteria.

MP-41 | Variation in endothelial function and central pressure in pre-diabetic hypertensive patients

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Introduction: Many studies show that hypertensive patients with increased glycated hemoglobin (HbA1c) have higher micro and macrovascular complications.

Objective: To evaluate changes in endothelial function, arterial stiffness and glucose metabolism in pre-diabetic hypertensive patients.

Methods: A cross-sectional study, hypertensive patients, age between 45 and 65 years, submitted to clinical, nutritional and laboratory evaluation, blood pressure (BP) measurement, pulse wave velocity (PWV), central hemodynamic parameters, post reactive hyperemia (HRPO) and retinography.

Results: Patients (n = 74) were divided according to HbA1c (pre-diabetics group HbA1c≥5.7% n = 41 and control group HbA1c <5.7% n = 33). The groups were homogeneous in age (58 ± 6 vs 58 ± 7 years, $P = 0.982$), body mass index (29.1 ± 3 vs 28.5 ± 3 kg/m^2, $P = 0.495$) and C-reactive protein (0.7 ± 0.4 vs 0.7 ± 0.5 mg/dL, $P = 0.742$). The pre-diabetics group showed significant differences in glucose (96 ± 11 vs 90 ± 8 mg/dL, $P = 0.019$), insulin (15 ± 6 vs 12 ± 5 mcU/mL, $P = 0.010$) and Homa-IR (3, 7 ± 1.5 vs 2.7 ± 1.2, $P = 0.003$). There was no significant difference between groups in PWV (10.2 ± 1.8 vs 10.3 ± 1.5 m/s, $P = 0.804$), systolic BP and diastolic BP (139 ± 11/84 ± 8 vs 135 ± 8/82 ± 7 mm Hg, $P > 0.05$), aortic SBP (135 ± 21 vs 130 ± 16 mm Hg, $P = 0.310$) and aortic pulse pressure (49 ± 18 vs 49 ± 16 mm Hg, $P = 0.955$). In HRPO, the pre-diabetic group presented smaller area under the basal and post-occlusion curve (AUC) (1691 ± 548/2144 ± 647 $P = 0.002$ vs 3065 ± 800/3538 ± 1141 PU/ mm Hg $P = 0.040$), smaller basal and peak cutaneous vascular conductance (CVC) (0.26 ± 0.0/0.34 ± 0.1, $P < 0.001$ vs 0.8 ± 0.2/0.9 ± 0.2 PU/ mm Hg, $P = 0.026$). In retinography, no significant differences were observed between the groups in retinal vascular diameters across the central retinal artery equivalent (CRAE) (110 ± 4.6 vs 110 ± 4.2 μm, $P = 0.877$) from the central retinal vein equivalent (CRVE) (152 ± 12 vs 155 ± 10 μm, $P = 0.253$) and arteriovenous ratio (A/V) (0.72 ± 0.01 vs 0.71 ± 0.01, $P = 0.424$). The pre-diabetic group had a negative correlation of PWV with peak CVC ($r = -0.35$; $P = 0.023$) and a positive correlation of HbA1c with aortic SBP ($r = 0.35$; $P = 0.045$), which was not observed in the control group.

Conclusion: In this sample, pre-diabetic hypertensive patients had evidence of endothelial dysfunction compared with the control group, and the relationship between glycated hemoglobin and central pressure may indicate an involvement of insulin resistance with pulse wave reflection.

MP-42 | Sarcopenic obesity and its association with nutritional indicators in hypertense patients with non dialytic chronic renal disease

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Introduction: The development of sarcopenic obesity (SO) has triggered interest. Thus, maintaining control of body fat and adequate preservation of lean mass has gained emphasis, because, in renal patients, there is a prevalence of sarcopenia associated with a progression in weight gain.

Objectives: To evaluate the relationship between sarcopenic obesity and its association with nutritional indicators in patients with non-dialytic chronic kidney disease.

Methods: Longitudinal cohort study in CKD patients in non-dialysis treatment, male and female, aged 20 years and over, were included in the study. Sociodemographic, anthropometric, body composition and clinical data were collected. Nutritional indicators used were: body mass index (BMI), abdomen (AC) and neck circumference (PC), adductor pollicis muscle thickness (APMT), handgrip strength (HS), sagittal abdominal diameter (SAD), waist-hip ratio (WHR) and body fat percentage. To evaluate body composition, double-emission x-ray absorptiometry densitometry was used. Glomerular filtration rate was calculated from serum creatinine using the CKD-EPI equation (Chronic Kidney Disease Epidemiology Collaboration). Sarcopenia was defined using the criteria of the European Working Group on Sarcopenia in Older People (EWGSOP). SO was defined by the presence of sarcopenia associated with high body fat percentage. Descriptive analyses, Student's t-test and chi-square tests were performed. Data were analyzed using the STATA 14.0 statistical program. The study was approved by the Research Ethics Committee (Consubstantiated Opinion 2 783 448).

Results: Were evaluated 190 patients, with a predominance of males (50.53%). The average age was 60.04 ± 11.71 years. Arterial hypertension was present in 86.87% of the patients and 46.03% were diabetic. According to BMI, 53.16% of the individuals were classified as overweight. It was observed that 6.32% and 4.21% of researched patients presented sarcopenia and OS, respectively. Regarding the association between OS and nutritional indicators, a statistical association between OS and WHR ($P = 0.04$) was verified.

Conclusion: The waist-hip ratio in this group of patients was associated with the diagnosis of sarcopenic obesity and can be used as a screening tool for this nutritional disorder.

MP-43 | **Nutritional markers of obesity and metabolic syndrome in patients with non-dialysis-dependent chronic kidney disease**

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Introduction: Obesity is a chronic disease characterized by excessive fat accumulation and is one of the triggering components of metabolic syndrome (MS).

Objective: To evaluate the association between nutritional markers and metabolic syndrome in CKD patients undergoing non-dialysis treatment.

Methods: Longitudinal cohort study conducted at the Renal Care Unit of a University Hospital. Participated in the study patients with CKD in non-dialysis treatment, both sexes and aged 20 years or older. Sociodemographic data, underlying disease, and clinical variables were collected. Venous samples were collected after 12 hours of fasting and included: lipid profile (triglycerides, total cholesterol, HDL cholesterol, and LDL cholesterol) and fasting glucose. The nutritional indicators were: body mass index (BMI), waist circumference (WC), sagittal abdominal diameter (SAD) and tricipital skinfold (TS). Metabolic syndrome was defined using NCEP-ATP III criteria. In the data analysis the chi-square and t-tests were used and the statistical program STATA 14.0 was used. The adopted significance level was 5%. The study was approved by the Research Ethics Committee (Consubstantiated Opinion 2 783 448).

Results: The study evaluated 190 patients. The average age was 60.04 ± 11.71 years and male individuals (50.53%). The main etiologies of CKD were hypertension (86.77%) and diabetes mellitus (46.03%). MS was present in 61.57% of the surveyed population. Regarding the association between nutritional indicators of abdominal obesity and metabolic syndrome, it was observed that patients diagnosed with MS had a higher prevalence of abdominal obesity when evaluated by WC (93.22% vs 53.33% $P = 0.000$) and SAD (79.31% vs 37.14% $P = 0.000$) and higher prevalence of overweight when assessed by BMI (69.49% vs 26.39% $P = 0.000$) and adequacy of TS (57.49% vs 40, 85% $P = 0.036$). Patients with MS had lower mean HDL cholesterol (40.39 ± 13.65 vs 55.15 ± 17.19 $P = 0.000$).

Conclusion: High prevalence of metabolic syndrome was observed in the studied population, showing a statistically significant association between nutritional markers. The changes found in the present study are amenable to therapeutic approach, including changes in lifestyle, especially in the combination of diet and exercise.

MP-44 | **Association between sarcopenia and ultrassensible PCR in patients with non dialytic chronic renal disease and hypertension**

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Introduction: Sarcopenia is a disorder that affects skeletal muscle mass, being prevalent in the population with chronic kidney disease (CKD). The inflammatory status of individuals with CKD is associated with progressive loss of muscle mass. Objective: To evaluate the association between sarcopenia and ultrasensitive CRP levels in patients with non-dialytic chronic kidney disease and hypertension.

Methods: Longitudinal cohort study with CKD patients in non-dialysis treatment and hypertension and aged 20 years or older. Demographic, anthropometric, clinical and laboratory data were collected. Venous samples included: creatinine and ultrasensitive PCR. The nutritional indicators used were: body mass index (BMI), handgrip strength (HGS) to assess muscle strength and lean mass (LM) evaluated by X-ray dual emission absorptiometry densitometry (DEXA). Sarcopenia was defined using the criteria of the European Working Group on Sarcopenia in Older People 2019 (EWGSOP2). Glomerular filtration rate was calculated from serum creatinine using the CKD-EPI equation (Chronic Kidney Disease Epidemiology Collaboration). Descriptive analyses, Student's t-test and chi-square tests were performed. Data were analyzed using the STATA 14.0 statistical program. The adopted significance level was 5%. The study was approved by the Research Ethics Committee (n° 2.783.448).

Results: The study evaluated 190 patients, 50.5% male. The average age was 60.0 ± 11.7 years. Arterial hypertension was present in 86.8% of the patients and 46.0% were diabetic. According to BMI, 53.2% of individuals were classified as overweight or obese. The prevalence of sarcopenia was 6.3% and a total of 37.4% were inflamed. Patients diagnosed with sarcopenia had higher means of ultrasensitive CRP (1.86 ± 3.33 versus 0.59 ± 1.94; $P = 0.01$).

Conclusion: Based on the above, muscle loss characterizing sarcopenia in patients with CKD is associated with higher rates of inflammation, which complicates the general health and muscle function of these individuals.

MP-45 | Association between skeletal muscular mass and anthropometric parameters in hypertense and diabetics attended in a renal disease prevention center

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Introduction: Loss of muscle mass is considered an independent factor for impairments such as difficulties in performing daily activities, malnutrition, and worsening prognosis.

Objectives: Investigate the relationship between skeletal muscle mass and anthropometric parameters in hypertensive and diabetic patients with non-dialytic chronic kidney disease (CKD).

Methods: A longitudinal cohort study was performed, including hypertensive and diabetic patients with non-dialytic CKD, of both sexes and aged over 20 were evaluated. Sociodemographic, anthropometric, clinical and laboratory data were collected. The anthropometric indicators used were: Body Mass Index (BMI), Hand Grip Strength (FPM) and Arm Muscle Circumference (CMB). Body composition was assessed by x-ray dual emission absorptiometry (DEXA) densitometry. To determine skeletal muscle mass, Relative Muscle Mass Index (RSMI) was defined using the criteria of the European Working Group on Sarcopenia in Older People (EWGSOP) using the following formula: skeletal lean mass/height^2. The STATA 14.0 statistical program software was used for data analysis. Numerical variables were presented as the mean ± standard deviation (SD), and frequencies were presented as numbers (N) and percentages (%). Differences between numerical variables were calculated by Student's t-test, and differences between nominal variables were calculated using the chi-square or Fisher's exact test when indicated. The level of significance was set at $P \leq 0.05$. The study was approved by the Ethics Committee of the institution under protocol number 2783448.

Results: A total of 190 patients were female (50.53%). The mean age was 60.04 ± 11.71 years. Hypertension was present in 86.87% of the patients and 46.03% were diabetic. Muscle mass was reduced by 16.7% of men and 12.0% of women. It was observed that men with reduced skeletal muscle mass had a higher prevalence of low muscle strength when evaluated by the MPF (56.25% versus 12.66%; $P = 0.000$) and inadequate BMI (87.50% versus 35.44). %; $P = 0.000$). Among women, it was observed that those with reduced skeletal muscle mass had a higher prevalence of BMI inadequacy (72.73% versus 15.38%; $P = 0.000$) and malnutrition when evaluated by BMI (36.36% versus 6.10 %; $P = 0.001$).

Conclusion: Arm circumference was the anthropometric variable associated with reduced skeletal muscle mass in this group of patients, regardless of gender. It may be a useful measure for sarcopenia screening.

MP-46 | Effects of 2 resistance training protocols in arterial stiffness and in hemodynamics parameters of youth health: A pilot study

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Introduction: Several studies have reported an increase of arterial stiffness and values of blood pressure with resistance training practice (RT). However, little is known about the hemodynamic outcomes when utilizing synergist and agonist muscles in the same training session.

Objective: Therefore, the aim of this study was to compare the effects of 8 weeks of two TR protocols: one group trained in the same session, the synergist and agonist muscles (SA), and the other group was not training the synergist and agonist muscles in the same session (NSA).

Methods: The subjects were randomized to group SA (5 men, 22.6 ± 2.6 years), and to group NSA (7 men, 20.8 ± 2.7 years) ($P = 0.30$). Both groups were training 4 days/week and performed 4 exercises for the pectorals (or back) muscles, 2 exercises for the synergist of these muscles (triceps or biceps) and 1 exercise for the lower limbs. The SA group trained triceps in the same session of the pectorals muscles, as well as the biceps in the same back muscle session. The NSA and SA groups trained biceps and triceps on opposite days. Peripheral hemodynamic variables (systolic blood pressure (pSBP), diastolic (pDBP), mean (pMBP) and pulse pressure (pPP)) were evaluated. Utilizing the aplanation tonometer, central hemodynamic parameters (systolic blood pressure (cSBP), diastolic (cDBP), mean (cMBP), pulse pressure (cPP), ejection duration, aortic amplification index (AIx) and pulse wave velocity (PWV) were also evaluated. A pre and post intragoup comparison was performed, and data were expressed in mean and standard deviation. The results showed that there were no significant differences in pSBP, cSBP, pMBP, ejection duration, AIx and PWV variables, either for the SA group, or for the NSA group. Also there was no statistical difference in pDBP and cDBP for the SA group, as well as of pPP, cPP for the NSA group. However, a significant increase of pPP (pre 43.6 ± 2.7 vs. post 52.0 ± 5.4; $P = 0.007$) and cPP (pre 27.8 ± 3.3 vs. post 33.6 ± 5.8; $P = 0.013$) was verified for the SA group, as well as of pDBP (pre 68.1 ± 3.6 vs. post 70.2 ± 4.9; $P = 0.01$) and cDBP (pre 68.4 ± 3.7 vs. post 71.1 ± 4.9; $P = 0.003$) for the NSA group.

Conclusion: The results of this present study suggest that RT, using synergist and agonist muscles in the same session, promote an increase in peripheral and central pulse blood pressure, and the non-utilization promotes an increase in the peripheral and central diastolic blood pressure.

MP-47 | Circumference of calf as indicator of sarcopenia in hypertense and diabetics attended in a renal disease prevention center

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Introduction: Sarcopenia is characterized by reduced strength and muscle mass, as well as decreased muscle function related to both aging and chronic diseases such as chronic kidney disease (CKD). The prevalence of sarcopenia in CKD is increased and is associated with increased morbidity and mortality, and calf circumference seems to be an easy and simple anthropometric indicator used to assess muscle mass and sarcopenia.

Objective: To verify the association between calf circumference and sarcopenia in patients with non-dialytic CKD.

Methods: This is a cross-sectional study conducted with 190 individuals with non-dialytic CKD who were treated at the Center for the Prevention of Kidney Diseases of a University Hospital, from August 2018 to January 2019. The calf circumference was considered reduced when it presented values <31 cm. Sarcopenia was defined according to the European Working Group on Sarcopenia in Older People criteria, with muscle strength measured by dynamometer and muscle mass assessed by DEXA. The normality of the variables was tested by the Shapiro Wilk test and the association between calf circumference and sarcopenia was measured by the T student test, with 95% confidence. This study was approved by CEP-HUUFMA (no2.783.448).

Results: 60.53% were elderly and 50.53% were male. Calf circumference was decreased by 12.11% and the prevalence of sarcopenia was 6.32%. calf circumference was lower among sarcopenic individuals (32.7 cm vs 34.8 cm; P-value = 0.0316). BMI was also lower among sarcopenic individuals (83.76 cm vs 97.40 cm; P-value = 0.0003).

Conclusion: Calf circumference has been associated with sarcopenia and may be a simple and rapid method for screening for disease.

MP-48 | Effect of 16 weeks of multifunctional training on subjective sleep quality of hypertensive elderly

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Introduction: Aging is associated with changes and decreases with functional and structural physiological changes, being most notable when associated with life-acquired diseases such as diabetes, hypertension, and sleep disorders. Among the sleep disorders that most affect the elderly population are increased latency, reduced total sleep duration, difficulty in resuming sleep, early awakening, daytime sleepiness, and obstructive sleep apnea. There are treatments for these disorders including physical exercise in many modalities, and there is no guidance for multifunctional training.

Objective: Therefore, the objective of the study is to evaluate the effect of a multifunctional training program on the significant promotion of subjective sleep quality in the elderly.

Methods: The training was carried out with 15 elderly (66.9 ± 3.6 years) of both genders, being 11 previously active hypertensive women who underwent a 16-week circuit training program, three times a week on non-consecutive days. The exercise sessions were divided into three parts: warm-up, main part (3 rounds) and calm back. The exercises were performed with standard movement (vertical pull, horizontal pull, vertical push, horizontal push, hip dominance, and knee dominance), physical skills (strength, speed, and flexibility) and motor skills (agility, coordination, strength, and balance). Training progressed in the amount of season (8 to 10), the degree of difficulty of the exercises and the time of execution (30s to 45s). The perception of effort was assessed by the Borg Scale with indexes between 11 and 14 (moderate intensity). Measurements were applied before and after the intervention Pittsburgh Sleep Quality Index, Epworth Sleepiness Scale, and Berlin Questionnaire.

Results: The study showed statistically significant improvements for Latency (P = 0.043), Efficiency (P = 0.002), Sleep Disorder (P = 0.009), Global Score (P = 0.016) and Excessive Daytime Sleepiness Scale (P = 0.004).

Conclusion: The present study shows that the multifunctional training program was able to improve Latency, Efficiency, Sleep Disorder, Global Score and Daytime Sleepiness.

MP-49 | Descriptive analysis of the profile of physical activity between students of a private medical college of Rio De Janeiro and its impact as factor of cardiovascular risk

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Introduction: The physical activity (PA) has innumerable benefits for health, being able to promote anything from physical improvement to reduction of risk for cardiovascular disease (RCD). Medical students have difficulty to balance the social life and the academic activity, due to the high school demand with extensive workload, and, because of that, this population generally is not able to fulfill the objective praised by OMS to practice physical activity at least 150 minutes/week of moderate-intensity aerobics activities or 75 minutes of high intensity.

Objective: The present study aims to develop a descriptive analysis of the profile of PA between the students of a private medical college located in Zona Norte (North Zone) of Rio de Janeiro and to analyze how their routine interferes at this practice.

Method: This study is a transversal descriptive analysis. It recruited 286 medicine students from first (1°) to fourth (4°) year of course. The average of age presented was 20.95 years old (17-57 years old); 62.2% (n = 178) of the participants were female; 90.9% (n = 260) considered themselves white; the average BMI was 23.04 kg/m^2 (16.6-33.17); the average blood pressure was 115.4 × 64.89 mm Hg. The data were collected by a semi-structuralized questionnaire, arterial pressure measurement with automatic device and evaluation of anthropometric measures. All data collected were analyzed by SPSS statistical program version 21.

Results: The descriptive analysis of the data defined two (2) distinct groups: "not sedentary" (n = 218) and "sedentary" (n = 68). The "not sedentary" group was further divided into three sub-groups of PA: "<150 min/week of PA", which correspond to 26.1% (n = 57); "150 min/week of moderate-intensity PA" corresponding to 63.3% (n = 138); and "75 min/week of high intensity PA" corresponding to 10.5% (n = 23). About the type of PA made by each group, 51% related making aerobic and anaerobic activity, 19.9% related only making aerobic activity and only 8% of the population-related only making anaerobic activity. In regard to the possible interference of the routine as medical students and the practice of PA, 72.7% (n = 208) believed that it has a negative impact on practicing PA, making it harder to maintain a regular and satisfactory PA routine.

Conclusion: Although the students know the importance of PA in the prevention of CVRD and most of the time that their daily routine is not practiced in this practice, we emphasize that 43.7% of students do not practice PA or are unsatisfactory according to OMS assessments, or which makes new dissemination and incentive strategies necessary for this practice.

MP-50 | ANKLE-BRACHIAL INDEX AND CARDIOVASCULAR RIKS IN HYPERTENSIVE AND DIABETIC PATIENTS ATTENDED AT A KIDNEY DISEASE PREVENTION CENTER

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Introduction: Ankle-brachial index (ABI) is considered an important marker of vascular risk. Has a strong association with the severity of atherosclerosis and the mortality risk in cardiovascular and cerebrovascular diseases.

Objective: To investigate the association of ABI with cardiovascular risk in hypertensive and diabetic patients with non-dialytic chronic kidney disease (CKD).

Methods: A cross-sectional study conducted at a University Hospital. Were included individuals from both sexes, aged 20 years or older, diagnosed with diabetes mellitus (DM) and/or systemic arterial hypertension (SAH) and with CKD. Sociodemographic, anthropometric, body composition, clinical and laboratory data were collected. The nutritional indicators adopted were: neck circumference (NC), relative muscle strength index (RMSI), abdomen circumference (AC), sagittal abdominal diameter (SAD) and waist-to-height ratio (WHR). The laboratory variables were: serum creatinine, high-sensitivity PCR and lipid profile. The glomerular filtration rate was calculated using the Chronic Kidney Disease Epidemiology Collaboration (CKD-EPI) equation. To evaluate the cardiovascular risk were used the ankle-brachial index (ABI) and the lipid accumulation product (LAP index). The ABI was obtained by the ratio between the highest systemic blood pressure (SBP) of the lower limbs and the highest SBP of upper limbs. LAP index was calculated with the formula: (AC – 58) × TG for women and (AC – 65) × TG for men. Descriptive analyses were performed, chi-square test and t-test. Data were analyzed using the statistical program STATA 14.0. The study was approved by the Research Ethics Committee with number 2.783.448.

Results: The study evaluated 190 patients, predominantly male (50.5%). The mean age was 60.0 ± 11.7 years. Arterial hypertension was present in 87.0% of the patients. Muscle mass was reduced by 14.29% of the sample. About nutritional indicators, 70.00%,

80.00%, 82.63% and 63.44% of the patients had changed NC, AC, WHR and SAD, respectively. About the high-sensitivity PCR, 37.37% of the patients were inflamed. It was observed statistical association between ABI and skeletal muscle mass ($P = 0.032$). The mean ABI was higher in the smallest tertile of LAP index.

Conclusion: The studied patients demonstrated high cardiovascular risk. The ABI was associated with skeletal muscle mass.

MP-51 | Neck circumference as a cardiovascular risk marker in non-dialytic CKD carriers

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Introduction: Renal homeostasis is known to be directly associated with cardiovascular physiological processes, which, in abnormal situations, increases cardiovascular risk factors. Neck circumference seems to be a good risk marker of cardiovascular disease.

Objective: To identify the association between neck circumference and cardiovascular risk indicators (CRI) in patients with non-dialytic chronic kidney disease.

Methods: This was a cross-sectional study of 190 patients with non-dialysis CKD at the Renal Disease Center of a University Hospital, from August 2018 to January 2019. The cardiovascular risk variables evaluated were: Index Body Mass Index (BMI), Neck Circumference (NC), Waist Circumference (WC), Waist to Hip ratio (WHR) and Sagittal Abdominal Diameter (SAD). The normality of the variables was tested by the Shapiro Wilk test and the association between NC and CRI variables was measured by the T student test, with 95% confidence.

Results: 50.5% were male and 60.5% were elderly. Individuals with increased NC (≥37 male and ≥ 34 female) are associated with WC (107.7 ± 9.7 vs 84.6 ± 8.5; $P = <0.001$), SAD ($22.4 \pm 2, 6$ vs 18.2 ± 2.0; $P = <0.001$), WHR (1.0 ± 0.07 vs $0.9 \pm O0.9$; $P = <0.001$) and HDL (42.6 ± 15.4 vs 53.8 ± 16.8; $P = <0.001$).

Conclusion: Neck circumference proved to be a good risk marker of cardiovascular disease in non-dialytic chronic renal patients, which reinforces the need for a good nutritional assessment in the diagnosis and treatment of cardiovascular disease in patients with CKD.

MP-52 | Reported hypertension, stress and perception of health in students of a Federal University in the Bahia-Brazil

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Introduction: Systemic arterial hypertension (SAH) is a multifactorial disease and represents a challenge for the health system, especially due to the high risk of developing cardiovascular events. In universities, due to demands, pressures, and deadlines, there is a possibility for increased stress levels and changes in lifestyle habits that lead to a decline in health perception and risk of hypertension.

Objective: To verify the prevalence of hypertension, health perception and stress in students of a Federal University in the state of Bahia.

Methods: A semi-structured questionnaire was applied and the data were analyzed using the Statistical Package for Social Sciences software. A chi-square test was applied to verify the association between the variables.

Results: A total of 112 academics from three different cities participated in the study, with 66.1% women and 33.9% men, with a mean age of 26.67 ± 9.109 years. About blood pressure levels, 84.4% of students reported not being hypertensive, while 15.6% reported hypertension. About stress, 55% of participants reported negative perception, 36.9% reported intermediate perception and 8.1% reported positive perception. Regarding health perception, 42.9% reported regular perception, 30.4% referred positive perception and 25.9% referred negative perception. Of the hypertensive students, 15% are related to the perception of stress, and reported intermediate perception. There is no relationship with hypertension in college students who stated positive perception of stress. The analysis of blood pressure linked to health perception showed that even referring to positive perception of health, 8.8% of these students referred hypertension. Among those who reported regular perception of health, 14.9% are hypertensive, as well as 25% of those who reported negative perception of health. There were no associations between the

variables hypertension and stress ($P = 0.36$) and hypertension and perceived health ($P = 0.21$).

Conclusion: It was found that SAH is a problem faced by these University students. They also reported negative perception of stress and regular health perception. It is essential the attention to the health of and educational programs that aim to reduce the level of stress, improve quality of life, promote health and prevent diseases such as SAH.

MP-53 | Effect of 15 weeks of multifunctional training on rest pressure in hypertense elderly

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Introduction: Multifunctional training has been widely recommended for the elderly population, given its ability to exercise the body integrally involving multiarticular and multiplanar actions with daily movements, thus improving balance, strength, mobility, endurance, agility, and speed, this leads to improvements in functional capacity and quality of life. However, regarding the blood pressure responses of hypertensive elderly, there is still not much clarification.

Objective: Thus, the aim of the study was to evaluate the 15-week effect of progressive multifunctional training on blood pressure in hypertensive elderly.

Method: The sample consisted of 15 elderly people of both genders (66.87 ± 3.56 years old), hypertensive, overweight (with BMI of $29.3 \pm 4.0 \, \mathrm{kg/m^2}$) who underwent 15 weeks of multifunctional training. The training was performed with moderate intensity (between 60% to 80% of the reserve heart rate) monitored through the atrium cardiac monitor and Borg subjective effort perception scale, the activities were performed in the afternoon (16 to 17 hours) following the CORE 360° guidelines. The exercise session was divided into 3 parts: warm-up, main part (3 rounds) and calm back. The workouts were divided into movement (vertical and horizontal pull patterns, hip dominance and knee dominance), physical skills (strength, speed, and flexibility) and motor skills (agility, coordination, strength, and balance). The evolution of the training occurred both in the number of seasons (8 to 10), the degree of difficulty of the exercises and the execution time (30 '' to 45 ''). Blood pressure measurements were performed according to the VII Brazilian guidelines for hypertension, always at rest before and at the end of the training program.

Results: After the intervention, there was a statistically significant reduction for both systolic pressure (137.61 mm Hg ± 20.51 to 115.75 mm Hg ± 16.63; $P = 0.0137$) as well as for diastolic pressure (79.23 mm Hg ± 7, 28 to 62.46 mm Hg ± 6.89; $P = 0.0005$).

Conclusion: Fifteen weeks of progressive multifunctional training were able to reduce systolic and diastolic blood pressure in hypertensive elderly. Further studies are recommended for further clarification.

MP-54 | Characterization of risk factors for cardiovascular diseases in women in street vulnerability, central region of São Paulo – 2018/2019

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Introduction: Living on the street is a real condition, especially in metropolises. In the last census of evaluation in the city of São Paulo, 15 905 people in vulnerable street situations were registered, being only 14.6% female. Although fewer, women become susceptible to developing comorbidities amid inequalities and violence.

Objective: The objective of this study is to highlight the profile of these women in central São Paulo and to relate to risk factors for cardiovascular disease.

Materials and Methods: It consisted of an exploratory, cross-sectional and quantitative field study, randomly selecting 161 people in situations of street vulnerability in the central region of São Paulo aged 18 to 60 years; submitted to a semi-structured questionnaire between the months of August 2018 to January 2019; characterizing the socio-demographic profile and the presence of risk factors for cardiovascular diseases associated with the measurement of blood pressure and heart rate following the recommended guidelines. Approved by the Institutional Ethics Committee in compliance with current regulations, our sample included 20 volunteers.

Results: In the sample analyzed, the female presence was 12%, average age at 34 years, 10% defined as white, 45% brown and 45% black; educational level: 10% illiterate, 20% with basic education, 35% elementary and 30% high school and 5% with incomplete higher education. Regarding the daily consumption of tobacco and alcohol; 85% and 40% respectively and 20% of injecting drug use. Mean blood pressure values were 128 × 82 mm Hg, heart rate 87 beats/min. Although within normal parameters, it cannot be disregarded that this population will not later have any cardiovascular disease, the most common being hypertension combined with some other chronic disease such as diabetes or AIDS. Homeless women become more vulnerable to excessive use of licit and illicit drugs in the context of crime, social and gender inequality, physical, emotional abuse, and sexual intimidation, financial exploitation.

Conclusions: The association of environmental, social, physiological, psychological and behavioral aspects directly converges to predispose and potentiate the risk of developing cardiovascular diseases, contagious infectious diseases, risk pregnancies and fetal impairment to the studied group[1-3]. Guidance has been made to prevent

comorbidities and promote health by warning about the effects of harmful health habits of the cardiac system.

Keywords: Hypertension, Women, Risk Factors, Social Vulnerability, Homeless People.

MP-55 | Clinical profile and correlation of risk factors of patients attended in health campaigns

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Arterial hypertension (AH) stands out as an important risk factor (RF) for the development of cardiovascular disease (CVD). Therefore, knowledge of the clinical profile of the population is a relevant issue to prevent the condition and/or its aggravating factors.

Objective: To recognize the clinical profile of participants of health campaigns and correlate it with the measured Blood Pressure (BP), identifying the inherent cardiovascular risks.

Method: A cross-sectional quantitative study with a convenient sample composed of participants from multi-professional campaigns focusing on hypertension. A semi-structured questionnaire was used to guide and record the anamnesis. Descriptive statistics were performed using relative and absolute frequencies as well as Pearson correlation analysis and Student's t-test for data analysis.

Results: 87 individuals were under treatment, 54% female with a mean age of 51 years. The elderly represented 31% of the population and 37% had high BP at the time of measurement among subjects <60 years old, 54% had blood pressure (BP). The analysis of waist circumference (WC) showed that 72% were above the recommended values, among which 59% were female. Considering the common and modifiable RF for AH and CVD, 13% reported smoking, 66% stress and 8% excessive alcohol consumption. Among the non-modifiable RF, 31% were men <60 years and 15% were women >60 years; 18% were black; 76% reported a positive family history for CVD. Statistical analysis showed a positive correlation between Body Mass Index (BMI) and Diastolic Blood Pressure (DBP) $P = 0.03$, and age with Systolic Blood Pressure (SBP) $P = 0.05$; regarding education and BP there was a negative correlation ($P < 0.05$), showing that the lower the education level, the higher the BP.

Conclusion: The results indicate higher blood pressure levels in the adult population under 60 years old, with prevalence in females. Among RF to CVD and hypertension, family history, stress, and increased BMI were highly prevalent. Identifying modifiable RF contributes to the prevention of the development of CVD and hypertension and to a more accurate multi-professional team performance.

MP-56 | Quality of life of people with hypertension

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Introduction: It is challenging to live with hypertension. Its impact on the usual dynamics of people diagnosed and under treatment, directly affects the quality of life, with psychosocial and financial losses. Thus, quality of life assessment can support essential indicators for the development of strategies for better adaptation to the disease and adherence to the therapy of choice.

Objective: To analyze the quality of life of people with hypertension followed by the Family Health Strategy (FHS).

Method: A cross-sectional study conducted with 191 people with hypertension, accompanied by the FHS of a medium-sized municipality, located in the northwest of Paraná state, Brazil. The sample was stratified by basic health units (BHU), according to a total of 6519 users in five BHU registered in the SISHIPERDIA system. The analyzed sample was representative, calculated through a simple stratified sampling process, with 5% estimation error and 95% confidence interval. Data collection was performed in the first semester of 2017, using the instrument Medical Outcomes Study 36 – Short Item – Form Health Survey (SF-36), adapted and validated for a Brazilian version. Data were analyzed by descriptive statistics and dispersion measures using the IBM SPSS version 20.0 software. The project was approved by the Standing Committee on Ethics in Research with Human Beings, under opinion number 1.407.687/2016.

Results: Most respondents were elderly (79.1%), female (67.5%), with up to 4 years of study (48.2%) and married (68.1%). Regarding the quality of life, respondents evaluated as more significant the dimensions of functional capacity (79.71 ± 26.55), physical performance (78.66 ± 39.97), general health status (76.92 ± 21.11), pain (68.82 ± 23.25), and emotional aspects (68.66 ± 32.49). The dimensions referring to vitality (65.60 ± 15.87), social aspects (66.95 ± 22.13) and mental health (67.53 ± 21.01) obtained lower averages.

Conclusion: The results of this study showed that most respondents presented a good quality of life in the biological dimensions, however, pointed out that the psychosocial characteristics and difficulties of functional autonomy of participants are comprehensive. Then, there are required interventions of healthcare professionals to enhance the adherence to the treatment and self-care practices for an improvement in the quality of life.

MP-57 | Healthy behaviors in health and arterial hypertension campaigns

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Introduction: Healthy behaviors refers to actions who aim to promote or maintain a healthy life. Arterial hypertension (AH) is a multi-factorial condition and many risk factors (RF) could improve this development. To understand healthy behaviors by a multi-professional team enables better management of RF.

Objective: To identify which are the healthy protectors' behaviors in a sample of a city population.

Methods: A cross-sectional study with data from health campaigns in São Paulo between 2018 and 2019. We used a semi-structured instrument for data recording, which was based on descriptive and analytical statistics.

Results: Relationships related to the level of knowledge, self-care, smoking, physical activity, sodium intake, anthropometric data, drug and stress management were achieved from the perspective of nursing, physiotherapy, nutrition, pharmacy, and psychology. The mean systolic blood pressure (SBP) value of the people who use to measure BP (129/81 mm Hg) was higher ($P = 0.02$) than those without this habit (122/78 mm Hg). Of these, 63% of subjects are hypertensive or pre-hypertensive and 39% of hypertensive patients do not have the habit of measuring BP. There was no difference in blood pressure (BP) between sedentary and active people. The non-smoking condition was related to SBP at levels closer to ideal (121/76 mm Hg); ex-smokers had the highest mean BP (123/81 mm Hg). BP did not differ between those with the highest physical activity and ideal daily sodium intake, and with the lowest activity and highest sodium intake. There is no correlation between discontinued use of medication and/or carelessness of medication time with increased BP, but BP was higher in people who had carelessness of medication time (136/89 mm Hg vs. 133/81 mm Hg). BP was lower ($P < 0.002$) in total stress (118/76 mm Hg) than stress (129/82 mm Hg), and SBP was lower ($P = 0.04$) in near-exhaustion participants (113/71 mm Hg) compared to the resistance phase (120/80 mm Hg).

Conclusion: The absence of smoking and good medication adherence is a protective behavior in relation to BP. The RF interaction could determine the condition of health, and protector behaviors are necessary to improve positive outcomes in health.

MP-58 | Pharmacotherapeutic profile of individuals assisted in multiprofessional health campaigns in the city of Sao Paulo

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Introduction: Hypertension is a multifactorial clinical condition characterized by sustained elevation of blood pressure levels ≥ 140 and/or 90 mm Hg. In Brazil, it affects 32.5% of adult individuals, and many of these are untreated.

Objective: Survey of the pharmacotherapeutic profile of participants assisted in multiprofessional health campaigns focusing on hypertension.

Method: Cross – sectional study with 268 participants attended in 3 multiprofessional cardiovascular disease prevention campaigns conducted in the city of Sao Paulo in 2018. The Pharmacists asked to participants whether they were taking medications and which ones were antihypertensive, whether they self- medicated, and other questions related to adherence to pharmacotherapy. Blood pressure (BP) was measured by pharmacists and nurses.

Results: There was a predominance of participants under 60 years (83%) and female (65%). In the pharmaceutical interview, 54.5% reported self-medication with non-steroidal anti-inflammatory, analgesic, nasal decongestant, vitamin, antiallergic and 35.5% used other medications. Of the participants, 30% reported taking antihypertensive drugs: 29 angiotensin receptor blockers, 26 diuretics, 25 angiotensin-converting enzyme inhibitors, 22 beta-blockers, 7 calcium channel blockers, and 10 did not remember the name of drugs. Concerning the use of medications, 78% said not forget to take the drugs, 81% did not consider themselves careless with pharmacotherapy and 78.5% never discontinued antihypertensive drugs on their own. Regarding BP measurement, 33.5% had BP ≥ 140/90 mm Hg.

Conclusion: Among the participants in health campaigns, we identified greater participation of young adults and females, with 30% of hypertensive patients undergoing treatment, with good therapeutic adherence. We also found a high incidence of self-medication and 1/3 of participants with high BP, highlighting the importance of multiprofessional health education campaigns.

MP-59 | The use of tobacco and the main cardiovascular changes found in the homeless people – Center of São Paulo – 2018/2019

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Introduction: Tobacco contributes to the development of cardiovascular diseases (CVD) resulting in abnormal endothelial function

which causes damage to the hemodynamic system and also acts as a risk factor for CVD. Nicotine use produces a negative impact on the body due to vasoconstrictor function that stimulates the sympathetic nervous system, elevates heart frequency, blood pressure and myocardial contractility because of the reduction of oxygen supply. Among the susceptible groups there are those in street situations; they consume a great amount of tobacco in order to reduce hunger, stress, environmental factors, and chemical dependency.

Objective: This research was made to relate tobacco consumption as a risk factor for CVD in street inhabitants of São Paulo city in Brazil.

Results and Discussions: Among the 161 volunteers those who smoke were 71%, about 83% were male, 13% showed a sedentary lifestyle and 69% were addicted to alcohol. The average blood pressure was 131 × 82 mm Hg, above the normal parameters, and the average heart frequency was 88 bpm. 25 individuals had a heart frequency higher than 100 bpm and 19 of them are smokers.

Conclusions: This study shows the relation between heart frequency increases to smoking. To stop smoking quickly revert the abnormal endothelial function, which is the focus of the treatment. The lack suffered by this population reflects on tobacco use and other addictions, resulting in a reduction of life quality. During this research, nursing care had been done by means of interventions through distributing materials about how dangerous tobacco is and its consequences to the cardiovascular system, emphasizing self-care as necessary for monitoring, follow-up, and treatment.

MP-60 | Potentially inappropriate medications for elderly with hypertension according to Beers criteria

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Introduction: Hypertension is a chronic morbidity, prevalent worldwide, and affecting mainly the elderly, due to increased life expectancy and physiological issues. Some medications are considered inappropriate, considering the elderly clinical features, and must be avoided at the prescription stage, to reduce the aggravation and complications resulting from their clinical condition.

Objective: To analyze the profile of potentially inappropriate medications for the elderly with hypertension followed by the Family Health Strategy (FHS).

Method: This study is cross-sectional and descriptive, conducted from medical records of elderly with hypertension, registered in the SISHIPERDIA program of 35 Basic Health Units and 71 FHS teams of Maringá-PR, Brazil. For data collection, a semi-structured script was used by the authors themselves, based on the classification of the American Geriatrics Society – Beers Criterion, version 2019, categorized according to the therapeutic class related to the cardiovascular system and its active principle. Descriptive analysis was used to treat the variables, with the aid of IBM SPSS software, version 20.0. The research was reviewed by the Standing Committee on Ethics in Research with Human Beings, receiving a favorable opinion (1 407 687/2016).

Results: Two hundred sixty medical records were evaluated, in which the majority of respondents were female (67.3%), married (55.4%), with elementary education (47.3%), white (64.6%), retired/pensioner (74.2%) and who used more than three medications per day (61.2%). Regarding the group of drugs used in the treatment of hypertension, there was a prescription of calcium channel blockers (nifedipine – 7.6%), antiarrhythmic agents (amiodarone – 2.4%; digoxin – 1.8%), diuretics (spironolactone – 10.4%), alpha-blocker (doxazosin mesylate – 2.0%) and adrenergic agonist (methyldopa – 4.0%; clonidine hydrochloride – 8.7%).

Conclusion: The study showed that there is the prescription of potentially inappropriate drugs for the elderly, drugs belonging to the therapeutic class of the cardiovascular system, more frequently the adrenergic agonists and the diuretics. Then, there is the necessity of healthcare professional intervention to reduce prescription of inappropriate medications for the elderly, especially in the Family Health Strategy.

MP-61 | Accessibility to diagnosis of hypertension in the family health strategy

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Introduction: Of multifactorial origin, hypertension is a chronic disease of high prevalence, characterized by high and sustained blood pressure levels, with functional changes in organs such as the heart, kidneys, brain, and blood vessels. Because it is asymptomatic, its early diagnosis is a determining factor in reducing disease-related diseases and is still incipient in the clinical practice of the Family Health Strategy (FHS).

Objective: To analyze satisfaction about accessibility to the diagnosis of people with hypertension in the FHS.

Method: This study is descriptive, conducted with people under treatment of hypertension, registered in the SISHIPERDIA system of 34 Basic Health Units (BHU) and accompanied by 71 FHS teams. Data were collected in the first semester of 2016, using an adapted

and validated instrument to assess the satisfaction of people with hypertension about the essential attributes of Primary Health Care. In this study, questions regarding accessibility to diagnosis were used. Descriptive analysis was performed in the treatment of variables, with the aid of IBM SPSS software, version 20.0. The research was reviewed by the Standing Committee on Ethics in Research with Human Beings, receiving a favorable opinion (1 407 687/2016).

Results: Of the 417 people interviewed, 260 (62.4%) were elderly, 283 (67.9%) female, 337 (80.8%) with less than 8 years of schooling, 91 (21.8%) were unemployed, and 243 (58.2%) were married. Regarding the issues related to accessibility to the diagnosis of hypertension, it was assessed as inappropriate the need to have to return more than three times to have the accurate diagnosis (51.7%); waiting time for appointment with health professionals (61.0%); and the waiting time of over 60 minutes to be attended at the UBS (60.9%). Respondents reported difficulties in reaching UBS (33.1%); financial expense (37.2%); and delay or loss of a workday and or a commitment, to be attended at the UBS (27.4%).

Conclusion: The findings of this study showed that there are organizational, geographical and financial obstacles to people access to FHS services. This restricts their results in determining an early diagnosis of morbidity and more accurate interventions to reduce complications resulting from its chronicity.

MP-62 | Influence of exposures to combat flight accelerations on cardiorresiratory fitness and endothelial function of fighter pilots

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Introduction: Civilian and military aircraft pilots must be able to resist to stressors factors such as changes in circadian cycle and ambient temperature, jet leg, as well as chemical and biological contaminated conditions during operations. In addition to stress conditions during flights regarding pressurization, vibration, hypoxia, dysbarism and noise variations, physiological and psychological individual factors must be considered. In fighter pilots, the exposure to G acceleration increases the stress. It is widely accepted that some professional occupations can promote deleterious chronic effects on health. However, issues associated with cardiorespiratory function and vascular health in fighter pilots need further investigation.

Objective: To compare cardiorespiratory fitness and endothelial function of fighter pilots with transport pilots and non-pilots.

Methods: Physically active pilots of the Brazilian Air Force and non-pilots were recruited (age = 32 ± 3 years, body mass = 82.1 ± 8.3 kg and body mass index = 26.3 ± 1.8 kg/m^2) and allocated in three groups as follows: fighter pilots (FP; n = 13), transport pilots (TP; n = 7) and non-pilot controls (NP; n = 20). Cardiorespiratory fitness by maximal cardiopulmonary exercise test with ergospirometry and endothelial function by venous occlusion plethysmography was assessed in two visits.

Results: No significant differences between FP, TP and NP for maximal oxygen uptake (VO$_{2max}$ – FP = 40.53 ± 5.71 mL/kg/min; TP = 39.69 ± 4.01 mL/kg/min and NP = 41.13 ± 9.00 mL/kg/min; P = 0.95). Forearm blood flow during post occlusion reactive hyperemia (FBF hyper – FP = 19.21 ± 5.86 mL/min/100 mL; TP = 17.35 ± 3.51 mL/min/100 mL and NP = 17.00 ± 4.77 mL/min/100 mL; P = 0.45) and after spray sublingual nitroglycerin (FBF nitro – FC = 3.33 ± 0.98 mL/min/100 mL; TP = 2.35 ± 0.74 mL/min/100 mL and NP = 3.04 ± 1.04 mL/min/100 mL; P = 0.11) did not differ between the groups studied.

Conclusion: FP demonstrated maximal aerobic capacity and endothelial function (evidenced by endothelial-dependent and independent vasodilatation) similar to observed in TP and NP. These preliminary results and other variables will be analyzed in larger sample to ratify the present findings.

MP-63 | Nursing interventions against cardiovascular risks and alcoholism found in vulnerable street population in central region of Sao Paulo – 2018/2019

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Introduction: We experience a growing number of people in vulnerable street situations, and there is a significant contingent excluded by many factors, contributing to the realization. Among the reasons that provide the street circumstance with the permanence and difficult modification of this situation is alcoholism. Alcohol, in turn, is a modifiable factor associated with predisposing factors for cardiovascular disease (CVD) can pose a huge risk to the homeless population. Diseases that occur due to the high amount of alcohol in the bloodstream can cause toxicity as well as damage to the vascular wall.

Objective: Given the above, we aimed to characterize this population regarding alcoholism as a risk factor (RF) for CVD.

Method: We conducted an exploratory, cross-sectional and quantitative field study, previously approved by the Research Ethics Committee under Protocol: 21519413.4.0000.5511; from August 2018 to January 2019. We randomly selected 161 people in

vulnerable street situations in central São Paulo, aged 18 to 60; submitted to a semi-structured questionnaire, evaluating socio-demographic profile and presence of RF for CVD, with measurement of blood pressure (BP) and heart rate (HR) respecting the recommended guidelines.

Results: Among those surveyed, alcohol consumption in the population was present in 61.5% confirmed in responses. Regarding gender, 64.5% of men say they use alcohol frequently, 40% of women. The pressure values of these individuals presented mean BP: 132 × 85 mm Hg; tending above the properly defined values and HR of 89 bpm.

Conclusion: Relationships between alcoholism and BP control mechanisms not then perfectly established, however, high alcohol consumption and its adverse effects can strongly contribute to hemodynamic, complex metabolic implications and consequently, direct effect on BP. With this work, we performed nursing interventions with the vulnerable homeless population related to prevention and health promotion. We provided educational leaflets and guidelines, as well as health access and self-care actions.

Keywords: Alcoholism; Cardiovascular system; Vulnerable populations; Primary health care.

MP-64 | Patients with resistant hypertension under telephonic monitoring performed by nursing professionals: A report of the experience

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Introduction: Resistant Hypertension is defined by "a non-controlled arterial pressure above 140 × 90 mm Hg, with the patient taking 3 or more anti-hypertension medications, or under control, or not, with the patient taking 4 or more anti-hypertensive medications" (GISMONDI, 2017). The clinical follow – up and the telephonic monitoring of the patient becomes principal as strategies for the fostering of health and life quality of hypertensive patients.

Objective: To report the experience of graduate and undergraduate nursing personnel in the follow-up of hypertensive subjects through telephonic monitoring.

Method: It is a descriptive study, of the "experience report" type, performed at the Resistant Hypertension care ambulatory at the Antônio Pedro Hospital (HUAP) of Fluminense Federal University (UFF), in the period between May 2017 and April 2019. For such, 05 (five) stages were devised, as follows: first, the construction of a table, containing identification data, the date of the telephone call and questions referring to clinical state and intercurring episodes; secondly, the purchasing of a cell phone chip; third, the adaptation of the table to a web data log format for the involved research team;

fourth, the definition of a time table for the contacts; and fifth, obtaining the consent from the patient during the nursing consultation.

Results: From the 24 months of monitoring, 157 phone calls were made, from which the straightening of the bonds with the ambulatory tending, the self-report of waiting for the call, the reporting of related episodes to the medical team, and above all the capacity for health fostering through self-care habits directed by the nursing team were observed.

Conclusion: In the telephonic monitoring of the hypertensive patient the development of therapeutic relationship, especially by the deployment of a communication-and-listening based instrument, which enables the creation of bonds, health education and goals for self- care can be observed.

MP-65 | Analysis of the knowledge of the medical scholarships of Mais Médicos Program in Brazil (PMMB) on prevention of cardiovascular diseases

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Introduction: Cardiovascular diseases (CVD) are the leading cause of death in the World. In Brazil, they represent about 30% of total deaths, even despite the fact most of the CVD can be prevented in populations by changes on behavioral risk factors, and the Basic Health Unit (UBS) is fundamental in this process.

Objectives: To analyze the knowledge of the PROGRAM MAIS MÉDICOS FOR BRAZIL (PMMB) fellow physicians (M.D.) about CVD prevention.

Methods: A Cross-sectional, descriptive and quantitative study with 161 PMMB fellows who work in 30 cities in Cariri and South Center Ceará macro-regions. The data collection was in March/2018, through a semi-structured questionnaire on the knowledge about CVD approach/prevention. The doctors were given a clinical case report to confront various situations regarding CVD approach/prevention. The data were collected and analyzed using descriptive statistics with Epi-Info™ 4.0.

Results: Among 161 doctors, 157 answered the questionnaire. 65% (102) were able to correctly stratify the patient's risk for CVD. 80% (127) chose correctly the ideal approach to CVD, recommending not solely a pharmacological approach, instead they suggested an association with non-pharmacological behaviors that would involve changes in daily diet and lifestyle of the patients. WHO estimates that ¾ of cardiovascular mortality can be decreased with appropriate lifestyle changes. Regarding the management and recognition

of CVD complications in patients treated at a tertiary level (specialized hospitals) who return to UBS for therapy adjustment, 69% (109) of physicians took the best course of action. UBS is in a strategic position to manage longitudinal care and create connections in the Health Care Network of the system users. However, the UBS team, especially the doctors, must be prepared to deal with demands whose arise from the therapies instituted in the counter-referral process.

Conclusion: The fact that more than half of the doctors were able to successfully stratify CVD risk, and a significant number were able to offer good guidance to users. However, considering that almost 1/3 of the sample did not answer correctly on how to manage the complications of a user coming from secondary care services, which denotes and reinforces the need of thinking about whether college or postgraduate medical education is based or not on the needs of the community, as well as the urgency of continued education and constant updating on the themes that can cause more morbidity and mortality to the population.

MP-66 | Evaluation of life quality of the hypertensive patients by means of the Minichal-Brazil in nursing consultations in a specialized ambulatory

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Introduction: Estimates indicate that arterial hypertension affects 36 million adults in Brazil, and about 60% of the elderly, being a severe chronic disease with a high rate of morbimortality; thus, contributing direct or indirectly to 50% of deaths caused by cardiovascular disease, and bringing evidence of the importance of prevention and health fomenting, beginning with its precocious detection (Malachias e cols, 2016), and for the life quality of the hypertensive.

Objective: To estimate the life quality of the hypertensive by means of the Minichal-Brazil in a specialized ambulatory consultation scenario.

Method: It is a report about the experience performed at the Resistant Hypertension care ambulatory at the Antônio Pedro Hospital (HUAP) of Fluminense Federal University (UFF), in the period between May 2017 and April 2019. The data collection was performed during nursing consultations through the Minichal-Brazil questionnaire (Schulz e cols, 2008). It has a total of 16 questions, divided into two domains named "Mental State" and "Somatic Manifestations", with 10 and 6 questions, respectively, with Likert type scoring (from 0 = absolutely not, to 3 = yes, very). And one last question referring to the patient's self-perception of one's life quality. As for "Mental State", the maximum score is of 30 points, whereas for "Somatic Manifestations" it is of 18 points. Thus, the closer the results are to zero, the better the life quality is presumed to be.

Results: In the analysis of data from 61 hypertensive subjects, the greatest number (74%) was of the feminine gender, and of which 65% aged 60 or over. From this total, 51% presented good, 26% average and 23% low life quality and additionally that in the low life quality group there is a prevalence of elderly hypertensive subjects below 60 years of age (13%).

Conclusion: In the nursing consultation, the clinical evaluation and especially the self-stated perception of life quality are employed to sponsor non-pharmacological interventions.

MP-67 | The control and pharmacological treatment of hypertension in specialized outpatient clinic

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Introduction: Hypertension shows a high impact on morbidity and mortality, though its low control rates.

Objectives: To analyze the control and pharmacological treatment of hypertension and associated variables.

Methods: A cross-sectional study with analysis of electronic medical records of 782 patients, attended from February to October of 2018, in specialized outpatient clinic. Inclusion: age ≥ 18 years old, hypertension diagnosis and treatment ≥ 6 months. Excluded: 104 patients: secondary hypertension; 64 patients: incomplete data. Outcome: The control of BP (SBP <140 and DBP <90). Independent variables: demographic and clinical (drugs, comorbidities and laboratory tests) features. Analysis: bivariate by the χ^2 tests of Pearson or Fisher Test and t-Student or Wilcoxon-Mann-Whitney; multivariate by the Logistic Regression. The significance level was $P \leq 0.05$.

Results: Mean age 64.2 ± 14.8 years old, 65.3% were female, 74.2% were white, 51.4% were married. 51.1% had their blood pressure controlled. Medical history: Dyslipidemia (50%), Diabetes Mellitus (36.9%), Chronic Kidney Disease (28.3%), Obesity (25.9%), Resistant Hypertension (25%), Stroke (10.2%) and Cardiac Insufficiency (8.6%). The mean Body Mass Index was 29.3 ± 6.2 kg/m^2 and BP 142.1 ± 22.0 mm Hg /78.0 ± 14.1 mm Hg. Laboratory tests: Total Cholesterol 179.0 ± 40.3 mg/dL, LDL 100.8 ± 32.5 mg/dL, HDL 53.8 ± 15.6 mg/dL, Triglycerides 139.2 ± 72.1 mg/dL; Glucose 110.2 ± 33.5 mg/dL, Glycated Hemoglobin 6.1 ± 1.2%; Creatinine 1.1 ± 0.9 mg/dL, Urea 42.8 ± 23.0 mg/dL, Glomerular Filtration Rate (MDRD) 68.0 ± 24.6 mL/min and Proteinuria 30%. The average of

drugs was 8.9 ± 4.2 per patient and 98.2% took antihypertensives drugs, with average of 3.34% ± 1.35% per patient. Regarding to the antihypertensives classes: diuretics (79.8%), as 44.2% hydrochlorothiazide; calcium channel blockers (69.3%), as 92.5% amlodipine; beta-blockers (56.9%), as 65.8% atenolol; angiotensin receptor antagonists (ARBs) (54.3%), as 98.4% losartan; ACE inhibitors (31.2%), as 96.7% enalapril; centrally acting (16%), 100% were clonidine; vasodilators (14.6%), as 50% hydralazine; alpha-blockers (5%), as 81.8% doxazosin. The variables associated to the lack of control of BP were: BMI (OR = 1.038; IC95% = 1.008–1.071), history of stroke (OR = 0.453; IC95% = 0.245–0.821) and left ventricular hypertrophy (OR = 1.765; IC95% = 1.052–3.011) and number of prescribed medication (OR = 1.082; IC95% = 1.033–1.136).

Conclusion: Almost half of the hypertensive patients did not have their blood pressure under control, although these data are higher compared to other studies. Clinical variables and target organ damage were related to the control.

MP-68 | The contribution of nursing at the resistant hypertension treatment ambulatory

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Introduction: In Brazil, 30% of deaths have as their main cause cardiovascular diseases, and among these ischemic diseases cerebral vascular strokes and heart failure. However, when we assess the period between 2000 and 2013, we shall see that there was an increase in mortality due to hypertensive diseases. That is an alarming datum in face of the estimate of 36 million hypertensive Brazilians. (Rocha, 2017). Thus, Systemic Arterial Hypertension and especially the "Resistant" kind is of great relevance to public health policies, at different levels of care in the Brazilian public health care system (Sistema Único de Saúde – SUS), with multidisciplinary support.

Objective: To describe the Nursing experience in the Extension Project "Multidisciplinary Addressing of Resistant Hypertension" from the Systemic Arterial Hypertension Research Center (Núcleo de Pesquisa em Hipertensão Arterial Sistêmica, NUPHAS).

Method: It is a report about the experience in the above-mentioned Extension performed at the hypertension care ambulatory at the Antônio Pedro Hospital (HUAP) of Fluminense Federal University (UFF), in which there are 160 enrolled patients. The scheduled patients are submitted, on a weekly basis, to the following evaluations: measuring of arterial pressure, cardiac frequency, body weight,

height, abdominal waist line measurement and specific consultations by medical, nursing, nutrition and pharmacy professionals.

Results: In the last 24 months, the following health care procedures were performed by the nursing practitioners: the construction of an instrument for the performance of nursing consultations; planning and execution of monitoring, via telephone, of hypertensive patients; health education; screening for nursing, medical and nutrition consultations; and participation in multidisciplinary activities. As for research and teaching activities, the following can be highlighted: the creation of a research group named GEpHAS-UFF (Group of Nursing and Research in Systemic Arterial Hypertension); the contribution for the teaching-learning of undergraduate and graduate in nursing; a discussion of clinical and research focused on hypertension, self-care, and non-pharmacological interventions.

Conclusion: There is enormous importance following and monitoring the health needs of the hypertensive, and one's life quality, aiming at multidisciplinary interventions; besides, providing a learning opportunity to active and future health professionals for the integrated care and self-induced care of the patient.

MP-69 | Systematic assistance to hypertense patients in basic health care: Breaking paradigms in clinical practice

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Introduction: The Nursing Care Systematization (NCS) that guides care and clinical documentation, is understood as a methodology aiming to organize and systematize care, based on the scientific principles, identifying health-disease situations, nursing care needs, providing promotion, prevention, recovery and rehabilitation interventions for patients, family, and community health. So, the nursing consultation with hypertensive patients in primary care is considered as a gateway health system, prioritizing care in a health-oriented way and not just the disease.

Objective: To identify nursing diagnoses related to clients with hypertension through the implementation of the SAE in the basic health unit.

Method: Nursing students experience report focused on systematized care and the welfare of hypertensive patients. The study took place in May/2019 during 5 days of clinic practice at the Basic Health Unit of Rio de Janeiro´s state. As a teaching strategy of SAE, we

used the EP according to Horta's framework and the Taxonomy of International Classifications of NANDA nursing diagnoses.

Results: Analyzing the resulted data, several diagnostic categories were found: fatigue, unbalanced nutrition (more than what the body needs), low self-care, knowledge deficit, activity intolerance, risk for impaired physical mobility, anxiety, fear, impaired tissue integrity, ineffective sexuality pattern, risk for falls, overweight and disturbed sleep pattern. Among these diagnoses, stands out the ineffective control of the therapeutic regimen. The nursing diagnostics listed in this study made it possible to draw up the assistance plan using professional language based on the responses of the hypertensive client to the real diagnoses and risk.

Conclusion: The nursing diagnostics found reflects clients from Hiperdia Program do not have great adherence to treatment nor healthy lifestyle habits. Therefore, nursing consultation becomes essential to provide the development of educational actions in care aimed at promoting and preventing health problems to these patients.

MP-70 | Identifying customer profile and risk factors assisted by nurses in the hyperdia program

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Introduction: Non-communicable chronic diseases (NCDs), especially circulatory diseases (31.3%), cancer (16.3%), diabetes (5.2%) and respiratory disease (5.8%), are the main causes of morbidity and mortality, with impacts on the economy and quality on people's lives, due to the high degree of limitation to develop work and leisure activities. Studies developed by the Ministry of Health demonstrates a significant increase in the prevalence rate of systemic arterial hypertension (SAH) in 10 years in individuals over 18 years old residing in state capitals. This fact is attributed to the aging population and increasing urbanization, but above all, to eating habits and an unhealthy lifestyle. In this context, there is a need to follow the data regarding the health of the hypertensive population, which favors the identification of risk factors and the prevention of possible complications.

Objective: To identify the profile and risk factors of the hypertensive clientele attended at the Nursing consultation at the "Hiperdia Program", in the city of Niterói.

Method: A descriptive study, conducted with 37 hypertensive patients, from March to July of the current year, at the Nursing Office of the Hiperdia Program of a Basic Health Unit, in the city of Niterói, Rio de Janeiro, Brazil. For data collection, a questionnaire with closed and open questions was used, which contains the identification data and lifestyle habits of this assisted population.

Results: Out of the 37 patients, the majority, 86%, are female, 46% are married, with the average age of 59 years old; 58% had elementary school, 56% did not practice any kind of exercise and 62% reported that they sleep about 6 to 8 hours/day, although 26% say that they wake up tired and/or cannot sleep quietly at night; 28% are former smokers, 55% do not use any kind of alcohol and 67% say they are stressed. Regarding eating habits, 36%, despite eating regularly, reported still feeling hungry. They have difficulty in engaging in an adequate diet and regular physical activity was predominant. Preventive and promotional health actions, associated with early detection of risk factors are essential in the care of hypertensive clients who are assisted in Primary Care Units.

Conclusion: The data indicate that the practice of healthy habits, including physical exercise, dietary restrictions, and alcohol intake, has not been incorporated into the lifestyle and/or are still incipiently adopted by patients treated at the nursing consultation of the Hiperdia Program. This proposal aims to accompany hypertensive patients so that, through care and health education, it is possible to establish disease control and prevent damage, ensuring a better quality of life for these patients.

MP-71 | Nursing diagnoses in people with hypertension in primary health care

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Introduction: According to the world trends, the Brazilian scenario has been going through processes of demographic and epidemiological transition, fertility and mortality decline, aging and longevity of its population, which results in a considerable increase in health services demands due to the increase in chronic non-communicable diseases. Considering the multifactorial etiology and modifiable risk factors, such as smoking, sedentary lifestyle, inappropriate diet, obesity, dyslipidemia and alcohol consumption, many diseases such as arterial hypertension are identified in the Family Health Program. To manage health care assistance practice, the focus is the family care on its physical and social conditions, promoting the replacement of conventional care practices with a new work process, focused on

health surveillance. The work at this level of attention seeks to promote the integrity and hierarchy actions with territorialization and patient's enrollment through interprofessional work.

Objective: Investigate nursing problems and organize the nursing diagnoses of hypertensive patients in the Family Health Strategy.

Method: Exploratory study, conducted in a Primary Care Unit in São Paulo, Brazil, through a study of medical records of hypertensive patients and nursing diagnoses identification in the NANDA I Taxonomy. After data research, in the statistical analysis, with the SPSS software, to verify the data correlation, it was used the Fisher's Exact Test, Pearson's Chi-Square, with a significance level of 5% ($P < 0.05$).

Results: The socio-demographic profile of the 72 (100%) participants evidenced that 54 (75%) were women, 18 (25%) were men, the average age was 66.39 (SD 12.15), 57% shows a school level between elementary and high school, 42% without information on educational level and 1% illiterate. Regarding the Nursing Diagnoses (ND), the predominate ones were, 72 (100%) related to Security/protection; 66 (92) % Health Promotion; 44 (61%) Comfort; 43 (59%) Nutrition; 37 (52%) Activity and rest; 22 (31%) Coping/stress tolerance; 16 (22%) Self-perception; 12 (17%) Elimination and exchange; 11 (16%) Perception/cognition; 8 (11%) Sexuality; 2 (3%) Roles and relationship; 1 (2%) Principles of life. Specifically, the most prevalent ND were 72 (100%) related to Risk for falls; 49 (68%) Ineffective health self-control; 39 (54%) Chronic pain; 24 (33%). Imbalanced nutrition: more than the body requirements; 23 (32%) Sedentary lifestyle; 17 (27%) Willingness for increase control of therapeutic regimen; 16 (22%) Risk of unstable blood glucose; 11 (16%) Risk-prone health behavior: smoking; 9 (13%) Constipation and Low chronic self-esteem. Among the least prevalent were 2 (3%) impaired skin integrity; 1 (2%) Impaired bed mobility, Fatigue, Self-care deficit for food, Bathing self-care deficit, Impaired memory, Impaired verbal communication, and Impaired religiosity. In the correlation between ND and gender, it was significant for unbalanced nutrition: more than the body needs, in 10 (55.6%) men, 14 (25.9%) women, $P = 0.021$. Although there was a willingness to increase control of the therapeutic regimen in 4 (22%) men and 13 (24%) women, ineffective self-control of health was found for 14 (78%) men and 35 (65%) women. With unstable glycemic risk, 5 (28%) men and 11 (24%) women and sedentary lifestyle, 6 (33%) men and 17 (32%).

Conclusion: The daily report or the periodic follow up of the successive changes that occur with the human being, while it is under professional assistance, allows a global evaluation to establish the care planning. The Nursing Diagnosis allows the global assessment to establish the care plan at various stages of care systematization.

MP-72 | Different concurrent exercise models induces post-exercise hypotension and response in cardiac autonomic modulation in pre-hypertensive adults

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Introduction: Antihypertensive benefits of physical training, due to successive decreases after acute exercise sessions, is a phenomenon called post-exercise hypotension "HPE". The HPE is well established with aerobic and resistance exercises. Few studies have investigated the effect of concurrent exercise (ExC) on blood pressure (BP) and heart rate variability (HRV) in adults with established hypertension.

Objective: To investigate the effect of two concurrent exercise intervention models (ExR + A and ExA + R) on the acute behavior (60 minutes) of systolic and diastolic blood pressure (SBP/DBP) and heart rate variability indices ([HRV] R-Rms, HR bpm, LF n.u., HF n.u. and LF/HF%).

Methods: 10 sedentary, non-medicated, pre-hypertensive adults, both sexes (24 ± 3 years; 9 men; BMI: 24.7 ± 2.6; SBP/DBP: 126.7 ± 2.6/71.9 ± 2.6) participated in 8 visits, separated into 48-72 hours. In the first, anamnesis, anthropometric measurements, SBP, DBP, and HRV were performed. In visits 2 and 3, familiarization with the proposed exercises was performed. At visit 4 and 5, 10RM testing and retest was performed, as well as counterbalanced randomization for subsequent visits. At visits 6, 7 or 8, the experimental protocols were performed, which consisted of SBP, DBP, and HRV measurements, with participants in a sitting position for 10 minutes before interventions and 60 minutes (every 10 minutes) after interventions: ExR+A, ExA+R or Control. Interventions with concurrent exercise consisted of ExR (6 exercises/3sets/8-12 rep/90% of 10RM, 2 minutes rest) and ExA (treadmill walking/running/20 min/60%-70% HRR). In Control, participants remained seated for 50 minutes. The dependent variables were analyzed by repeated measures ANOVA and Bonferroni post hoc was performed when necessary. For all analyses, a significance value of $P \leq 0.05$ was accepted.

Results: Compared to ExR + A and ExA + R vs. Control we observed significant differences for: SBP (F = 17.9, $P < 0.0001$, −13 and −12 mm Hg); DBP (F = 6.2, $P = 0.019$, −11 and −8 mm Hg); R-R (F = 5.1, $P = 0.01$, −349 and −368.3 ms); FC (F = 19.3, $P < 0.001$, +22 and +21 bpm); LF (F = 23.3, $P = 0.01$, +12 and +8 n.u.); HF (F = 22.7, $P = 0.01$, −16 and −11 n.u.) and LF/HF (F = 11.8, $P < 0.001$, +3 and +4%).

Conclusion: ExR + A and ExA + R were able to induce PEH in prehypertensive adults. Blood pressure reduction occurred in parallel with increased sympathetic cardiac autonomic modulation and reduction of parasympathetic modulation.

MP-73 | Diabetes mellitus as cardiovascular diseases risk factor at vulnerable street population in the central area of São Paulo – period of 2018–2019

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Introduction: Diabetes Mellitus is a chronic disease, characterized by high glucose levels in the blood caused by autoimmune reaction on beta-pancreatic cells, causing their malfunction and even the destruction of said cells, impairing insulin metabolism and the body´s ability to respond. The main symptom is hyperglycemia which results in increased plasma osmolality and platelet aggregation, also lipid dysfunction, increasing risk factors for cardiovascular disease. In recent years there has been a significant rise in the number of people diagnosed with the disease; in 2017 there were 425 million people diagnosed with diabetes mellitus and by 2045 it is estimated that this number should rise up to 693 million. Because it is a multifactorial disease, vulnerability street people are at greater risk of developing comorbidities for living in precarious situations with limited access to healthy foods and quality hygiene, poor health care and many times, licit and illicit drug use and abuse.

Objective: To investigate the relation between *diabetes mellitus* and risk factors for triggering cardiovascular diseases in people street situations.

Materials and Methods: It consisted of an exploratory, cross-sectional and quantitative field study, approved by the Institutional Research Ethics Committee, under protocol 036417, CAAE:21519413.4.0000.5511. Randomly selected 161 people in situations of street vulnerability at central region of São Paulo aged between 18 to 60 years; submitted to a semi-structured questionnaire between the months of August 2018 to January 2019; characterizing the socio-demographic profile and the presence of risk factors for cardiovascular diseases associated with the measurement of blood pressure and heart rate following the recommended guidelines. Approved by the institutional Ethics Committee in compliance with current regulations.

Results: Of the 161 people in the study we noticed that 6% of respondents reported having *diabetes mellitus*, of these, all are male, 20% describes performed previous cardiologic consultation, 30% report a previous history of acute myocardial infarction, 20% of stroke, presenting mean blood pressure of 139 × 83 mm Hg above recommended levels and heart rate of 90 beats/min. Considering that the collected data were in rest period.

Conclusions: For being an asymptomatic disease, the main problem of *diabetes mellitus* is late diagnosis, augmenting the risk for developing cardiovascular diseases that are the leading cause of mortality in the country. The guidance was given to this population on the importance of self-care for the prevention of *diabetes mellitus*, contributing to the improvement of life habits. Educational actions were conducted with this population such as informational material, lectures on healthy eating on low income, outpatient follow up and how to recognize the signs and symptoms of hypoglycemia and hyperglycemia crisis and where to seek care.

MP-74 | Cardiovascular risk analysis of elderly in a south Bahia city

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Introduction: Cardiovascular diseases (CVD) and systemic arterial hypertension (SAH) are among the most prevalent chronic non-communicable diseases. Since CVDs are the main causes of morbidity and mortality in the world.

Objective: To analyze the risk of CVD in elderly women participating in a companionship group in a municipality in southern Bahia.

Method: This is a descriptive cross-sectional study. The level of physical activity was evaluated through the long version of the International Physical Activity Questionnaire, considering the individual who engage in exercise more than 150 minutes/week as active. Data on blood pressure (BP), weight, height, body mass index (BMI), waist circumference (WC) and waist-hip ratio (WHR), as well as a socioeconomic and health questionnaire were used. The information collected was tabulated.

Results: Twenty elderly women with a mean age of 67 ± 6.36 years participated in the study, 57.15% white, 33.33% non-white, 4.76% black and 4.76% indigenous declared. From the sample studied, 14 elderly women reported hypertension, 7 reported diabetes and 5 denied comorbidities. The average weight was 60.49 ± 12.88 kg, with an average height of 156 ± 6.45 cm, a BMI of 26 ± 4.49 kg/m^2, were classified as overweight. The average waist circumference was 88.71 ± 11.34 cm and the hip circumference of 100.47 ± 11.12 cm, resulting in WHR of 0.88 ± 0.075 cm. WC measurements above ≥ 80 cm and WHR ≥ 0.85 for women indicate CVD risk. Regarding BP, the mean systolic BP was 135 ± 12 mm Hg and diastolic BP 72 ± 90 mm Hg. About the level of physical activity, all were classified as active, with an average of 927.75 ± 704.52 min weekly, and efficient ways to reduce chronic disease risks.

Conclusion: There was a high risk for CVDs in women participating in a companionship group in a city in southern Bahia. In the study, it was observed that the elderly have hypertension, besides being overweight, WHR and WC above the recommended. Hypertension is a risk factor for cardiac and cerebrovascular complications, and when related to anthropometric changes increase the risk for CVD. The implementation of public policies to improve the health of the

elderly and prevent CVD is essential, as is the improvement of quality of life.

MP-75 | Level of physical activity and hypertension in students of a Federal University of Bahia-Brazil

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Introduction: Systemic arterial hypertension (SAH) is a relevant public health problem, due to the increased risk of cardiovascular disease. Physical activity is an important lifestyle factor for the prevention and treatment of hypertension.

Objective: verify the level of physical activity and prevalence of systemic arterial hypertension in university students of a federal educational institution in Bahia.

Methodology: A semi-structured questionnaire was applied and the data were analyzed using the Statistical Package for the Social Sciences. Chi-square test was applied to verify the association between the variables.

Results: A total of 122 academics from three different cities and from both sexes participated in the study, 66.1% women. The age of participants ranged from 18 to 58 years, with an average age of 26.67 ± 9.109 years-old. The prevalence of hypertension was 15.6%, with 52.9% in men and 47.1% in women. In the present study, 84.4% of students reported as non-hypertensive. The analysis of the physical activity level of college students revealed that 69.4% of the individuals practiced moderate or vigorous physical activity (MVPA), with periodicity ≥ 150 minutes per week, and 30.6% reported MVPA practice <149 minutes per week. The association between the variables MVPA and AP showed that 20% of the students who practice MVPA ≥ 150 minutes per week reported SAH and, among those who perform MVPA <149 minutes per week, the prevalence of reported hypertension is 6.1%. There was an association between the level of physical activity and SAH (P = 0.05) and also between woman and SAH (P = 0.017).

Conclusion: There were a high percentage of college students not practicing the recommended levels of physical activity for health. SAH was reported by students and was associated with the level of physical activity among women. Actions are needed to promote health and quality of life to the university students.

MP-76 | Oral mucosa altered as a risk factor for cardiovascular diseases in the vulnerable street population in the central area of São Paulo 2018–2019

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Introduction: In 2015 there were an estimated of 15 905 people in the city of São Paulo living on street according to the last census of the population of street in the city of São Paulo. These people, due to their precarious conditions, end up sharing personal belongings and oral hygiene items such as toothbrushes, leading to a high level of transmissibility through saliva, blood and possible injuries. The oral cavity is richly vascularized. When infected, there is a risk for the development of bacteremia, including bacterial endocarditis, which is a disease consisting of a severe infection of the valves or cardiac endothelium.

Objective: To correlate infectious risks of altered oral mucosa and cardiovascular disease to the vulnerable homeless population.

Materials and Methods: Consisted of an exploratory, cross-sectional and quantitative field study, approved by the Institutional Research Ethics Committee, under protocol 036417, CAAE:21519413.4.0000.5511. Randomly selecting 161 people in situations of street vulnerability in the central region of São Paulo aged 18 to 60 years; they were submitted to a semi-structured questionnaire from August 2018 to January 2019; characterizing the socio-demographic profile and the presence of risk factors for cardiovascular diseases associated with the measurement of blood pressure and heart rate following the recommended guidelines.

Results: Of the 161 respondents, 30% have already shared toothbrushes, 24% share the brushes, and 46% have never shared. The average blood pressure presented was 129 × 82 mm Hg, indicating values above the recommended.

Conclusions: Altered oral mucosa acts as a risk factor for the development of bacterial endocarditis disease. Due to the severity of this cardiovascular disease, guidelines were conducted for respondents through quick and simple educational lectures, elucidating the importance of health of the oral mucosa, the individual use of personal items, especially the toothbrush, the cause of the disease and the consequences of sharing these items, thereby reducing the risk of bacterial endocarditis. We also distributed various personal care kits containing shavers, condoms, brushes and toothpastes. We also stress the importance of oral hygiene, as well as everyone to periodically follow up in the Basic Health Units resulting in an improvement in the quality of life of this population.

MP-77 | Cardiometabolic risk in adolescents enrolled in high school: Influence of work

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Introduction: Epidemiologic studies show that in many cases cardiovascular diseases can begin in youth, due to early exposure to cardiometabolic risk factors. In adults, work generates more exposure to these factors, but in the adolescent population few studies have been published.

Objective: Evaluate the cardiometabolic risk in adolescents attending high school at public schools in Campinas and establish relations between risk factors and work.

Method: A cross-sectional study done with 130 adolescents. Sociodemographic characteristics and habits were collected from an adapted and validated instrument. The dietary pattern was assessed by the Revised Diet Quality Index for the Brazilian population (IQD-R) and the nutritional status was assessed by the score. Blood pressure measurement was done with an automatic arm blood pressure monitor validated for adolescents. Statistical tests of paired and unpaired Student's t-test, Wilcoxon, Mann-Whitney, Kruskal-Wallis, Chi-squared distribution, Fisher's exact, McNemar and Spearman's rank correlation coefficient were done. The statistical software SAS version 9.4 and SPSS version 22.0 were used for the analysis.

Result: The prevalence of high blood pressure results was 7.7%. Out of those, 4.5% didn't work and 10.9% were workers. No adolescent presented appropriate eating patterns: considering the Brazilian Healthy Eating Index, 61.2% needed modification and 38.8% presented inappropriate patterns. From the sample, 51.2% didn't regularly practice physical activities. Obesity prevalence was 28.3%. It was observed that 44.6% mentioned the intake of alcoholic beverages. When analyzing the work categories using systolic blood pressure and diastolic blood pressure results there was no evidence of statistical differences between them. The worked hours presented weak correlation between systolic blood pressure and diastolic blood pressure.

Results: Risk factors such as: alcohol intake, decrease in practicing physical activities and deterioration in sleep quality are associated with work, but obesity, tobacco consumption, and diet quality didn't show any differences between the groups.

Conclusion: Work has increased the exposure to certain cardiometabolic risk factors.