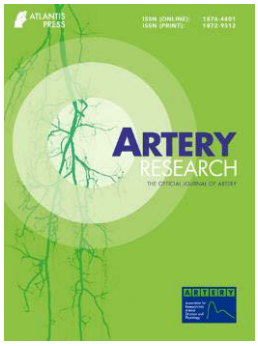

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P2.47: CAROTID PATHOLOGY AND RISK FACTORS IN HYPERTENSIVE PATIENTS FOR CEREBROVASCULAR DISEASE - CORRELATIVE CLINICAL, NEUROSONOGRAPHIC AND ECHOCARDIOGRAPHIC STUDIES

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P2.43

SMOKING HYPERTENSIVE MEN HAVE MORE PRONOUNCED EARLY ARTERIAL DAMAGE AS COMPARED TO NON-SMOKING HYPERTENSIVE MEN WITH HIGHER BODY MASS INDEX

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Objective: It is well known that smoking and obesity are cardiovascular risk factors. However, many smokers fear to stop, thinking that following increase in weight will counterbalance the positive effect of smoking cessation. Our aim was to analyze the effect of smoking and obesity on early arterial damage in hypertensive men.
Methods: Hypertensive men without cardiovascular disease were included into the study (n=88, age 48.8±4.1). All patients underwent detailed assessment of cardiovascular risk. Carotid ultrasound (Art Lab System V.2.0), measurements of arterial stiffness and aortic blood pressure by applanation tonometry (Sphygmocor v.7.01) and sphygmomanometry (Vasera VS-1000) were performed in order to evaluate early arterial damage.
Results: Smokers (n=30) were younger as compared to non-smokers (n=58) – 48.5±3.91 vs. 49.28±5.0 years, $p<0.05$. Non-smokers had higher body mass index (31.5±3.6 vs 29.6±4.0, $p<0.05$), heart rate (69.1±10.2 vs. 60.7±11.0, $p<0.05$), and aortic mean blood pressure (101±14.5 vs.108±12.11), but not aortic pulse pressure (37.9±7.4 vs. 37.3±10.7, ns). However, the aortic augmentation index AIx/HR (22.5±9.7% vs. 15.6±8.9%, $p<0.001$), heart-ankle stiffness index adjusted for blood pressure (CAVI-right 7.9±0.0.9 vs. 7.3±1.3, CAVI-left 7.8±0.9 vs. 7.2±1.2, $p<0.01$) and intima media thickness (0.65±0.17 mm vs. 0.56±0.13 mm, $p<0.05$) were significantly higher in smokers as compared to non-smokers. Smokers also had higher prevalence of the carotid plaques ($p<0.05$). Carotid-radial and carotid-femoral pulse wave velocity (Sphygmocor) didn't differ significantly (respectively, 9.2±1.5 vs. 9.25±1.1 m/s; 8.6±1.6 vs. 8.54±1.3 m/s, ns).
Conclusion: Although non-smoking hypertensive patients tend to be older and more obese, the smokers have worse arterial parameters in our study group.

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P2.44

INCREASED PULSE PRESSURE IS ASSOCIATED WITH LONG LEFT VENTRICULAR EJECTION DURATION IN ISOLATED SYSTOLIC HYPERTENSIVES

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Background: Apart from stiff arteries, increased pulse pressure is associated with increased left ventricular (LV) contractility. We investigated whether elevated LV performance can be derived from carotid artery diameter waveforms in hypertensives.
Methods: We obtained common carotid artery (CCA) diameter waveforms by ultrasound in 8 isolated systolic hypertension (ISH) patients (sys/dia: 154±17/77±13 mmHg, age 70±8 yrs). By dedicated signal processing we obtained, with good precision (<10%), left ventricular isovolumic contraction (ICT) and ejection durations (ET) from the diameter curve, as well as diastolic diameter (Dd), distension (ΔD), relative distension (ΔD/Dd), and distensibility (DC) and compliance coefficients (CC).
Results: Dd was 7.9±1.0 mm, ΔD was 0.30±0.12 mm, ΔD/Dd thus 4±2%; pulse pressure was 77±16 mmHg. DC was 10±5 MPa^{-1} and CC was 0.5±0.2 mm^2/kPa, clearly linking the elevated pulse pressure to reduced arterial stiffness. Heart rate was 76±18 min^{-1} while LV ICT and ET were 40±7 ms and 311±46 ms, respectively. LV dP/dtmax, estimated from the diastolic blood pressure-to-ICT ratio, was 1991±566 mmHg/s, suggesting no conspicuous contribution of LV contractility to increased pulse pressure in ISH. Within the group, however, there was a large spread in LV performance primarily related to ET and heart rate. Interestingly, ET showed a strong correlation with pulse pressure ($r^2=0.85$, $p<0.01$), suggesting long ejection duration contributes to high pulse pressure in some patients.
Conclusions: Increased left ventricular performance, as reflected by ejection duration, can be observed and discriminated in isolated systolic hypertensives by diameter waveform analysis.

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P2.45

EVALUATION OF CENTRAL BLOOD PRESSURE AND AUGMENTATION INDEX IN PATIENTS WITH ISOLATED AMBULATORY AND ISOLATED OFFICE HYPERTENSION: THE VOBARNO STUDY

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Different BP patterns have been identified by the use of office and 24 hours BP measurement: sustained normotension(NT),isolated office hypertension(IOH),isolated ambulatory hypertension(IAH)and hypertension (HT).Pulse-wave analysis has been proposed for evaluation of central BP;''augmentation index''(AIx)is an accepted indirect index of arterial stiffness.Aim of our study was to assess the relationships between PWA and BP patterns in a general population in Northern Italy.Methods In 242 untreated subjects(-age 54±9 yrs,BMI 25±4, 47% males)radial artery applanation tonometry and PWA were used to derive central aortic pressures and AIx.All subjects underwent laboratory examinations and clinic and 24 h BP measurement.-Subjects were divided into subgroups:NT(office BP<140/90 and 24 h BP<125/80 mmHg),IOH(office BP≥140/90 and 24h BP<125/80 mmHg),IA-H(office BP<140/90 and 24h BP≥125/80 mmHg)and HT(office BP≥140/90 and 24h BP≥125/80 mmHg).
Results: Patients with IAH and HT were older than NT(59.5±8.4 and 55.3±9.3 vs 51.1±6.4 yrs $p<0.01$).BMI was higher in IOH and HT than in NT(25.5±3.9 and 26.8±4.3 vs 23.7±3.3, $p<0.01$).After adjusting for confounding variables(including also mean BP and HR)AIx was significantly higher in IOH,IAH and HT in comparison to NT(31.1±1.0, 30.8±1.8, 31.3±1.0 vs 26.6±1.0,$p<0.01$).Central SBP was significantly higher in HT, but also in IOH and IAH, than in NT(HT 120.3±0.7, IOH 120.6±0.7, IAH 121.0±1.2 vs NT 117.8±0.7 mmHg,$p<0.01$).Conclusion:In a general population sample central SBP and AIx are greater in patients with sustained, office or ambulatory hypertension.In IAH,despite normal brachial BP,central BP is significantly increased, possibly contributing to increase cardiovascular risk.

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P2.46

RELATION BETWEEN PULSE WAVE VELOCITY AND PREDICTORS OF CLINICAL OUTCOME IN ARTERIAL HYPERTENSION

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Objective: to evaluate the relation between pulse wave velocity (PWV), an independent marker of cardiovascular risk and other parameters with prognostic significance: intima media thickness (IMT), left ventricular hypertrophy (LVH) and flow mediated vasodilatation (FMD) in patients with essential arterial hypertension.
Material and Methods: 142 hypertensive patients (aged 50-75 years, 65% females, without diabetes) were studied before and after 6, 12 months of treatment with ACEI/channel blockers + Indapamide. PWV was assessed using Complior method, IMT and FMD using carotidian/brachial ultrasound respectively. LVH was defined by index of mass (LVMI) and geometric patterns.
Results: 1. PWV is strongly related with LVMI and concentric hypertrophy irrespective the gender, moment of evaluation or regimen of treatment ($p<0.05$). Correlation with eccentric hypertrophy is evident at baseline only for females (t-test). 2. PWV is related with carotidian IMT ($r=0.38$, $p=0.01$) at baseline; after 12 months the relation remains only in ACEI subgroup ($r=0.42$, $p=0.03$). 3. Corelation with FMD exists only after adjusting for cardiovascular risk factors (ANCOVA).
Conclusion: our results suggest the complexe interrelation between non-invasive parameters of atherosclerosis, which is influenced by cardiovascular risk profile and antihypertensive regimen. The combination of these measurements is of stronger clinical relevance.

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P2.47

CAROTID PATHOLOGY AND RISK FACTORS IN HYPERTENSIVE PATIENTS FOR CEREBROVASCULAR DISEASE - CORRELATIVE CLINICAL, NEUROSONOGRAPHIC AND ECHOCARDIOGRAPHIC STUDIES

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Aim: The relationship between carotid pathology and risk factors (RF) in hypertensive patients for cerebrovascular disease (CVD).
Methods: Color duplex sonography of carotid arteries was performed in 924 hypertensive patients: 368 with RF for CVD, 126 with transient ischemic attacks (TIA), 287 with chronic unilateral infarction (CUI) and 143 with multiple infarctions. The intima media thickness (IMT) was measured in B- and M- mode. No modifiable (age, sex) and some modifiable (hypertension, diabetes, atrial fibrillation, dyslipidemia, carotid artery stenosis, obesity, hemorheological variables FR were evaluated. In 368 subjects with RF, 57 with CVD (31 with TIAs and 26 with CUI) and 16 healthy correlative clinical, neurosonographic and echocardiographic studies were performed.
Results: Arterial hypertension was the most common RF in all patients. An asymmetrical hypertrophy of the left ventricle and a decrease contractility was found as a typical diastolic dysfunction in most of them. Mild stenosis of ICA predominated in all groups while moderate or severe carotid stenoses were relatively rare.Symptomatic thromboses of ICA were seen in 4, 5 % in patients with CUI. IMT of the ICA on the site of infarction correlated positively with the arterial blood pressure ($r = +0.60$, $p<0.05$). A positive was established between CCA, diastolic blood flow and cardiac ejection fraction in patients with TIAs and CUI.
Conclusion: The study confirms clinical impact of carotid pathology alone or its association with other RF is under consideration. The changes of variables of hemorheology, lipids, blood pressure are related to other RF for CVD.

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P2.48
ARTERIAL HYPERTENSION AS A PROGNOSTIC FACTOR IN THE EARLY EVALUATION OF PATIENTS AFTER MYOCARDIAL REVASCULARIZATION SURGERY

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Objetives: to see the prevalence and clinical evolution of hypertensive patients after myocardial revascularization surgery (MRS) in the Coronary Unit.
Methods: a retrospective study for the evaluation of the characteristics and the evolution, in the Coronary Unit, of 72 patients (pts) that underwent MRS.
Results: the prevalence of AHT before surgery was 88.8%, (61% treated with beta blockers, 51% ACEI, 12% received calcium antagonists and 15% diuretics). From the hypertensive ptes, 60.6% presented AHT during the stay in the ICCU (75.6 % of men and 37.5% of women) ($p=0.004$). In the ICCU the pts with AHT were treated with nitroglycerin (NTG) in the 95.6% of the cases. The most frequent cause of early postoperatory complications were the taquiarrithmias and mayor bleedings but we did not find a relation between these complications and AHT in the early postoperatory. Bleeding was found in 24 % of the pts that developed AHT postoperatory vs. 12 % of the pts that did not develop AHT (NS). 32 % of the pts that developed AHT presented taquiarrithmias vs. 12% of the pts that did not developed AHT (NS). Patients were sent home with Beta Blockers in the 95.4 of the cases, with ACEI in the 64% and only the 14 was sent home with CA.
Conclusions: 1.AHT has a very high prevalence among pts that has received MRS. 2. AHT was more frequent in previously hypertensive men than in women in the early postoperatory of MRS. 3. AHT was not significantly associated with bleeding or taquiarrithmias. 4. Beta Blockers and ACEI were the drugs prescribed to the pts after the acute phase of MRS in the majority of the cases.

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P2.49
THE ASSOCIATION OF ARTERIAL STIFFNESS WITH ERECTILE DYSFUNCTION IN MIDDLE-AGED MEN WITH METABOLIC SYNDROME

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Background: Erectile dysfunction (ED) has been considered as a clinical manifestation of a generalized arterial disease. Aortic stiffness and wave reflections are early markers of vascular changes associated with metabolic syndrome (MetS). We evaluated the possible association between aortic stiffness, wave reflections and ED in middle-aged patients with MetS.
Methods: Two groups of subjects with MetS (mean age: 48 years) were investigated:75 men with ED of vascular origin and 55 men with normal erectile function matched for age, body mass index (BMI), systolic and diastolic blood pressure, heart rate and smoking habits. MetS was defined according to the ATP III criteria. ED diagnosis and score were evaluated according to the International Index of Erectile Function (IIEF) questionnaire. Carotid-femoral Pulse Wave Velocity (PWV) was measured as an index of aortic stiffness and radial Augmentation Index (AIx) as a measure of wave reflections.
Results: PWV was higher in patients with ED than in the control group (8.3 ± 1.1 vs 7.9 ± 0.8 m/s, $P<0.05$); AIx did not differ (24.3 ± 10 vs $23.9\pm11\%$, P=NS). To analyze the independent predictors of IIEF score, a stepwise linear regression analysis was performed using age, BMI, blood pressure, waist circumference, lipid profile, hsCRP and fibrinogen as independent variables. IIEF was independently associated only with PWV (beta=-0.273, t=-1.363, $P=0.02$).
Conclusion: In middle -aged subjects with MetS, the presence of ED is associated with a selective alteration of central PWV. This finding suggests that this group of patients may be at greater cardiovascular risk.

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P2.50
ENDOTHELIUM DYSFUNCTION IS THE RISK FACTOR FOR CARDIOVASCULAR EVENTS IN METABOLIC SYNDROME PATIENTS WITHOUT EVIDENCE OF CORONARY HEART DISEASE

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Background: Impaired function of endothelium has been reported to be the initial step in atherosclerosis and thus may be seen as either independent cardiovascular risk factor or a marker of a present underlying abnormality.
Materials: 302 metabolic syndrome patients were examined (aged 36.4 ± 2.1 years, 55% males). Baseline examination included routine clinical examination, laboratory tests, cardiac ultrasound, ECG- and blood pressure monitoring. As endothelium-dependent vasoreactivity is advocated as a measure of vascular health, using a high-resolution ultrasound, the diameter of the brachial artery at rest and during reactive hyperaemia (endothelial-dependent flow-mediated dilatation, ΔFMD%) was measured. Study group comprised 104 participants (37.0 ± 3.6 years, 54% males), with endothelium dysfunction (ED) at baseline, ΔFMD $189.2 \pm 19.7\%$. Control group included 198 patients without ED (35.8 ± 2.6 years, 56% males), ΔFMD $143.5 \pm 10.3\%$. Coronary heart disease (CHD) was excluded using coronary angiography or stress echocardiography. Follow-up assessments were performed at two and seven years (including stress echocardiography).
Results: at two years follow-up 36.5% of study group patients developed CHD comparing to 13.1% among the controls ($RR = 2.78$, $\chi^2_{(1)}=22.37$); at seven years follow-up total CHD incidence was 0.865 for study group and 0.353 for controls ($RR=2.45$, $\chi^2_{(1)}=71.71$), fatal cardiovascular events were registered in 7.69% and 3.03% respectively ($RR=2.57$, $\chi^2_{(1)}=3.325$).
Conclusion: In patients with metabolic syndrome not having CHD endothelium dysfunction should be regarded as an independent risk factor.

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P2.51
PRECLINICAL ATHEROSCLEROTIC DISEASE AND METABOLIC SYNDROME: A PREDIABETES STAGE?

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Aim: In ESH/ESC 07 Guidelines, Metabolic Syndrome (MS) and subclinical vascular disease (VD) are stressed as important markers of high risk in asymptomatic subjects. We compared the severity of VD by ultrasonography in patients (p.) with MS and Diabetes Mellitus (DM) and control (C) p. to analyze the relationship between the metabolic condition and the severity of VD.
Methods: We did **in the same procedure** 1) CIMT 2) Plaques characterization, 3) PWV and 4) FMD with a strict quality control. We set a score (VS) from 0 to 5 according to the severity of the VD. The CV Risk using Framingham score (FS) was also obtained from medical records.
Results: We performed a cross sectional, observational study on 292 matched p., 125 C without dyslipemia or overweight, 138 with MS (according ATP III criteria) and 29 with DM..