

Conclusions: As expected, the incidence of CV events in our cohort was low. Estimated high or very high CVR was present in a low percentage of workers when they really suffered CV events. There is an urgent need of more specific tools focussing on the particular risk profile of the working population (e.g. younger age or exposure to psychosocial risk factors at work).

PP.LB01.18 THE INFLUENCE OF PREGNANCY HYPERTENSION IN THE ENLARGEMENT OF LEFT ATRIUM

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Objective: There are many studies that evaluation the risk associated with increase LA volume but echocardiographic criteria aren't completely in pregnancy hypertension.

Design and method: To study whether a temporary condition as enlargement of left atrium is a marker of the severity and chronicity of diastolic dysfunction in pregnancy hypertension. We studied 250 women of the age 29.27(+ 7.29), 34.50(±5.21) week of pregnancy, who had previously been healthy. Left atrium volume, left ventricular geometry, dimensions and function were compared between groups using echocardiography. The LA size is measured at the end-ventricular systole when the LA chamber is at its greatest dimension.

Results: To study whether a temporary condition as enlargement of left atrium is a marker of the severity and chronicity of diastolic dysfunction in pregnancy hypertension. We studied 250 women of the age 29.27(+ 7.29), 34.50(±5.21) week of pregnancy, who had previously been healthy. Left atrium volume, left ventricular geometry, dimensions and function were compared between groups using echocardiography. Results; From the analysis of echocardiographic data resulted that women with hypertension during pregnancy had significant altered diastolic function compared to normotensive. Preeclampsia as well as pregnancy hypertension had increased dimension and volume of the left atrium had, increased LVMi with the abnormal geometric pattern of Eccentric hypertrophy, increased diastolic dysfunction, when compared with subjects with normal LV geometry. We found LA volume; (42.32 ± 7.9 ml), LV end-diastolic; (167.04 ± 28.53 ml) and end-systolic volume; (67.88 ± 16.85 ml), increased during hypertensive pregnancy to normotensive (37.00 ± 4.1, p < 0.001), (151.39 ± 15.64; and 58.36 ± 9.23; p < 0.001. The significant statistical relation was found between LA volume and Geometric Remodulation as well as Diastolic Dysfunction. The presence of geometric remodulation results in increase of LAV. (r = 0.215, p = 0.001). The increase of LAV results in increase of Diastolic Dysfunction. (r = 0.267, p < 0.001).

Conclusions: The data of this study found that, LA volume measurements should become a routine measure during pregnancy because they reflect the burden and chronicity of elevated LV filling pressure and are a strong predictor of future cardiovascular risk in these women.

PP.LB01.19 SUBCLINICAL CAROTID ATHEROSCLEROSIS IS ASSOCIATED WITH ALTERATIONS OF TIME-DOMAIN INDICES OF HEART RATE VARIABILITY

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Objective: Patients with atherosclerotic carotid disease usually do not present clinically overt signs of orthostatic dysregulation. In the present study we aimed at investigating if the presence of atherosclerotic plaque in the carotid sinus may alter baroreceptor function and thus heart rate variability (HRV) time-domain indices of autonomic tone and baroreflex sensitivity.

Design and method: This was a cross-sectional study. We evaluated ECG R-R intervals in asymptomatic patients with carotid disease with an intima-media thickening (IMT) more than 0.8 mm. The atherosclerotic artery IMT was determined by B-mode and duplex ultrasonography. Baroreflex sensitivity and autonomic tone were determined through time-domain measures of HRV.

Results: Of all time-domain measures of HRV investigated, we identified significant negative linear correlations between the common carotid artery IMT and time-domain HRV indexes reflecting baroreflex and autonomic tone: SDNN (standard deviation of R-R intervals), Spearman's r = -0.57, 95% CI: -0.78 to -0.25, P = 0.001; HRV triangular index (number of all R-R intervals / maximum number), Spearman's r = -0.62, 95% CI: -0.80 to -0.33, P = 0.0002; TINN (triangular interpolation of R-R intervals), Spearman's r = -0.59, 95% CI: -0.78 to -0.28, P = 0.0006. Similar strong negative correlations were found for subclavian IMT.

Conclusions: Our data indicate that the SDNN, triangular index and TINN HRV biomarkers may be early predictors of atherosclerotic carotid and subclavian in subjects at risk and may be an indicator for ultrasound evaluation.

PP.LB01.20 PROSPECTIVE ASSESSMENT OF THE DIRECT RENIN AND ALDOSTERONE ASSAY IN THE WORK-UP OF ARTERIAL HYPERTENSION

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Objective: Secondary potentially curable forms of arterial hypertension are markedly under-diagnosed in clinical practice, partly because of the difficulties encountered in the diagnostic work-up. These difficulties can be overcome by novel assays that are simpler and faster, provided that they are accurate.

To prospectively assess the diagnostic performance of a commercially available assay for plasma direct renin (DRA) and aldosterone concentration (PAC) in a relatively large cohort of hypertensive patients consecutively referred to a tertiary referral academic centre.

Design and Methods: Based on prior sample size estimation, we prospectively recruited 230 consecutive hypertensive patients referred for the work-up of arterial hypertension to the ESH Centre of Excellence for Hypertension of the University of Padua. The diagnosis of secondary HT was based on the "four corners of criteria" for primary aldosteronism, and on the outcome of renal revascularization for renovascular hypertension. Bland-Altman plots and Deming regression were used to assess the performance of the DRA/PAC combined assay as compared to the established previously validated PRA radioimmunoassay and the PAC ELISA assay.

Results: Among the 230 patients (45% Females; aged 45 ± 14yrs) 177 (77%) were found to have essential hypertension and the rest secondary HT: 19% PA, 1.7% renovascular hypertension, 0.9% Familial Hyperaldosteronism type 1 and 0.5% apparent mineralocorticoid excess. At Bland-Altman plot, the DRA assay showed an excellent performance as compared to the PRA assay, with only 4% of the values falling outside of the 95% confidence interval. Similar results were obtained for PAC measurement and also for ARR based on DRA or PRA. At Deming regression, the correlation coefficient between DRA and PRA was 0.920, at baseline, and 0.870 after captopril challenge (p < 0.0001 for both). Corresponding values were 0.909 and 0.869 (p < 0.001 for both) for PAC at baseline and after captopril. No significant differences of the area under the ROC curve between the DRA-based ARR and the ARR based on the established PAC and PRA assay was seen.

Conclusions: A novel automated combined PRA/PAC assays showed results similar to an established and clinically validated PRA/PAC assay and equivalent accuracy for the work-up of patients referred to a tertiary centre for the diagnosis of arterial hypertension.

PP.LB01.21 A PROPOSAL FOR THE IDEA OF A FLEXIBLE-COMBINATION POLYPILL IN ARTERIAL HYPERTENSION

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Objective: Modern pharmaceutical strategies in arterial hypertension, as well as in other fields, are directed toward two major apparently contrasting objectives: 1) simplification of treatment by grouping multiple drugs into single fixed-combination pharmaceutical units (including "polypill") to improve patient adherence, and 2) personalization of therapy to tailor treatments according to specific individual aspects including pharmacogenomics.

The combined fulfillment of these objectives would conceivably entail the unrealistic development of a very great variety of fixed-combination polypills, each different for drug composition and dosage.

An alternative view that could combine the need for both therapy simplification and personalization may be the concept of a flexible-combination polypill.

Design and Methods: In order to test this approach, we are devising a preliminary study aimed to assess the feasibility and efficacy of shifting individual patients' treatment from multiple daily administration (multi-administration) to a single once-a-day administration (mono-administration) of the same drugs.

After approval of Ethical Committee, a cross-over randomized study will be carried out for 24 weeks in 52 well controlled non complicated hypertensive outpatients under multiple therapy with at least one hypotensive drug and/or a statin and/or aspirin.

Each subject will remain for an 8 weeks period on multi-administration and for another 8 weeks period on mono-administration of the same therapy; the two periods will be separated by 8 weeks to avoid a carry-over effect and their sequence will be randomized.

Results: The study will provide information on the effects of mono-administration in comparison with multi-administration of the same drugs on adherence to treatment, adverse events, ambulatory blood pressure monitoring and lipid profile.

Conclusions: If results will be favorable, they could prompt large scale studies following the idea of a flexible-combination polypill and addressing the various regulatory and technological issues in the path for its realization and production systems.

PP.LB01.22 PATIENTS IN ACUTE PHASE OF ISCHEMIC STROKE HAVE SIGNIFICANTLY LOWER MICROVASCULAR RESPONSE TO THERMAL STIMULI COMPARING TO CONTROL GROUP

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Objective: The aim of this study was to assess endothelial function profile in subjects with acute ischemic stroke.

Design and method: There were 18 patients in acute phase of ischemic stroke enrolled to this study. Control group constituted n = 13 demographically-matched subjects hospitalized because of non-neurological diseases. Microvascular endothelial function assessment was performed by laser Doppler (Perimed, Järfälla, Sweden) at the first 24 hours from the onset of stroke and on the seventh day from the start of the research. Measurements of forearm cutaneous blood flow were recorded at baseline and during exposure to temperature 44 °C. Parallel, at baseline blood samples were obtained for complete blood count and basic biochemistry.

Results: Study group was characterized by lower mean platelet volume, lower high-density lipoprotein and potassium level, higher plasma glucose concentration. Excluding that both groups were homogenous regarding demographic and biochemical characteristics reflecting cardiovascular risk.

It was noted that the microvascular response to thermal stimuli was significantly lower in the study group comparing to the control group. The difference referred to both paretic and nonparetic limb. It persisted statistically important in the second examination after 7 days. There were no significant differences in study group between neither paretic and nonparetic limbs, nor between values observed at an interval of one week.

Conclusions: Microvascular dysfunction in reaction to thermal stimuli may reflect nerve or endothelial function impairment. As it is present in both disease-affected and nonparetic limb it is most likely systemic endothelial dysfunction, rather than direct expression of neurological dysfunction.

PP.LB01.23 ENDOTHELIAL FUNCTION IN PATIENTS WITH ISCHEMIC STROKE DEPENDS ON FOLIC ACID CONCENTRATION

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Objective: The aim of this study was to define the correlations between microvascular responsiveness and the results of basic biochemical laboratory tests.

Design and method: There were 19 patients in acute phase of ischemic stroke enrolled to this study. Microvascular endothelial function assessment was performed by laser Doppler (Perimed, Järfälla, Sweden) at the first 24 hours from the onset of stroke and on the seventh day from the beginning of study protocol. Measurements of the forearm cutaneous blood flow were recorded at baseline and during exposure to temperature 44 °C. Parallel, at baseline blood samples were obtained for basic biochemistry.

Results: Serum folic acid (FA) concentration is significantly and strongly positively correlated with the microvascular response to thermal stimuli one week after stroke symptoms onset. The relation in first 24 h was also positive, but statistically insignificant.

Conclusions: To our knowledge this is the first time to show that FA concentration influences vascular function in patients with stroke. Further studies are needed in order to define an exact role of folic acid supplementation in primary and secondary stroke prevention.

PP.LB01.24 HEART RATE VARIABILITY IN HYPERTENSIVE POSTMENOPAUSAL WOMEN

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Objective: To assess heart rate variability (HRV) parameters in hypertensive and normotensive postmenopausal women.

Indicator	Healthy controls (n=35)	Normotensive postmenopausal women (n=115)	Hypertensive postmenopausal women (n=88)
TP, ms ²	1864 [1221; 2348]	1050* [616; 1479]	761** [512; 961]
LF, ms ²	436 [362; 654]	245* [110; 373]	151** [71; 326]
HF, ms ²	588 [406; 729]	111* [64; 285]	85** [69; 250]
LF/HF, units	0,9 [0,8; 1,2]	1,25* [0,9; 2,31]	2,7** [2,3; 3,1]
SDNN, ms	185 [154; 202]	144* [122; 174]	127** [106; 139]
pNN50, %	21 [18; 27]	6* [3; 9]	3,5** [2; 6]
rMSSD, ms	60 [48; 74]	30* [22; 36]	25** [20; 35]

Statistically significant: * – compared with healthy controls (P<0,01); ** – compared with normotensive postmenopausal women (P<0,01,1)

Design and method: 203 women with surgical and natural menopause were included in the investigation: 115 normotensive women (average age 47,3 ± 5,4 years, menopause duration 4,8 ± 5,4 years) and 88 hypertensive patients (average age 43,2 ± 2,7 years, menopause duration 4,3 ± 2,1 years). 35 healthy women were included in the control group. Electrocardiogram was recorded in the supine position for 10 min. Spectral analysis included total power (TP), low and high frequencies (LF and HF) in absolute units. The LF/HF ratio was also calculated. All patients underwent ambulatory blood pressure and electrocardiogram monitoring (Cardiotsens-01, Meditech, Hungary). Time-domain HRV parameters evaluated were the standard deviation of all normal RR intervals (SDNN), the root mean square of differences between adjacent R-R intervals (rMSSD) and the percentage of adjacent R-R intervals that varied by more than 50 ms (pNN50). Statistical methods such as Cruskell-Walles and Dan criteria were used.

Results: TP, LF, and HF were significantly reduced in all postmenopausal women compared with healthy controls. SDNN, rMSSD and pNN50 were also significantly reduced in all postmenopausal women compared with healthy controls. All above indicators were significantly reduced in hypertensive postmenopausal women in compared with normotensive ones. LF/HF ratio was 2,2 times higher in hypertensive postmenopausal than in healthy women and it was 54% more than in normotensive postmenopausal women. This fact testifies about increased cardiac sympathetic modulation in postmenopausal women, especially in hypertensive ones.

Conclusions: Decreased HRV at simultaneous signs of a sympathetic overactivity can reflect increased cardiovascular risk at postmenopausal (in particular hypertensive) women.

PP.LB01.25 PHARMACOKINETIC PARAMETERS OF FIMASARTAN IN RUSSIAN PATIENTS WITH ARTERIAL HYPERTENSION

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Objective: Fimasartan, a novel potent angiotensin receptor blocker, was developed by Boryung Pharmaceutical. Co. Ltd in Korea. Considering that Korean patients were studied in pivotal clinical trials, determination of Fimasartan pharmacokinetic (PK) parameters in Russian patients was performed.

Design and method: Fifteen adult patients with arterial hypertension grade I-II in one investigational site took a single dose of Fimasartan 60 mg in fasted condition. Blood samples were collected pre-dose, 0,25; 0,5; 1; 1,5; 2; 2,5; 3; 4; 6; 8; 12 and 24 hours post-doses. Plasma concentration of Fimasartan was determined by validated method. Area under concentration-time curve from time zero to last time point (tlast) with measurable concentration (AUC0-tlast), AUC from time zero to infinity (AUC0-inf), percentage of AUC0-inf that is due to extrapolation from tlast to infinity (%AUCextrap), maximum observed concentration (Cmax), time to maximum observed concentration (tmax), apparent terminal elimination half-life (t1/2) were calculated. The results were compared to previously obtained PK data from Korean hypertensive patients and Caucasian healthy volunteers.