P10.09: HETEROGENOUS REACTIONS OF FOREARM LARGE ARTERIES AND RESISTANCE VESSELS TO VERAPAMIL TREATMENT

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Patients and methods: 378 elderly hypertensive patients (> 60 years) treated with at least one antihypertensive agent and presenting with SMC but without dementia were prospectively recruited and underwent a combination of neuropsychological tests, a brain magnetic resonance imaging with semi-quantification of White Matter Hyperintensities (WMH), carotid echotacking, brachial endothelial function and ambulatory blood pressure (BP) assessments.

Results: None of the 3 composite scores (Memory score, verbal fluency, visual memory capacity) was found associated with BP levels. On the other hand, age and gender-adjusted analyses showed a significant and positive association between memory score and calcium channel blockers (CCBs) use (users: +0.14 ± 0.09 versus non-users: -0.12 ± 0.06, p = 0.016). Multivariate analyses also revealed that CCBs use was significantly associated with a better memory score, independently from age, male gender, WMH and carotid wall cross-sectional area, all of which were associated with worse memory scores.

Conclusions: In elderly hypertensive treated patients with SMC, CCBs use was associated with better memory performances independently of BP level and macro and microvascular alterations, suggesting a specific neuroprotective effect of this pharmacological class. Interventional controlled trials are required to confirm the specific protective effect of CCBs on cognitive decline.

P10.08
THE BRACHIAL ARTERY ENDOTHELIAL FUNCTION UNDER THE INFLUENCE OF VASODATIVE ANTIHYPERTENSIVE TREATMENT
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Objective: To investigate and compare the endothelium-dependent vasorelaxation dynamics when administering beta-blockers carvedilol, nebivolol and calcium antagonist amloidpine to patients with essential arterial hypertension (AH).

Methods: Ninety patients with 1-2 grades AH aged 30-55 years were studied. All patients were randomized to receive carvedilol (n = 45), nebivolol (n = 25) and amloidpine (n = 25) in initial daily doses of 25, 5 and 5 mg respectively. In two weeks if office BP level of 140/90 mmHg was not attained the dose of medicine was doubled. In four weeks in cases of uncontrolled AH the indapamide 1.5 mg was added. The length of administering period was 8 weeks. Endothelial function (EF) was evaluated with the help of flow mediated dilation (FMD) test. The ambulatory BP monitoring (ABPM) was held.

Results: An average daily dose of carvedilol, nebivolol and amloidpine amounted to 31.4±16.2, 5.7±2.4 and 6.4±2.6 mg. Mean 24-h systolic and diastolic BP significantly decreased in all groups. We also observed that the degree of brachial artery FMD reliably increased by +5.5%, +1.6% and +4.6% under the influence of carvedilol, nebivolol and amloidpine respectively. At the same time the share of patients with full recovering of EF brachial artery FMD >10% increased significantly only in carvedilol group – from 4.5% to 27.3% (p25 = 0.004).

Conclusion: In hypertensive patients the brachial artery endothelial function significantly increased under the influence of vasoactive antihypertensive drugs carvedilol, nebivolol and amloidpine. The greatest effect on brachial artery flow mediated dilation was observed in carvedilol group.

P10.09
HETEROGENEOUS REACTIONS OF FOREARM LARGE ARTERIES AND RESISTANCE VESSELS TO VERAPAMIL TREATMENT
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Objective: Calcium channel blockers possess vasodilating action but there is no evidence to our knowledge about vasodilating effect on different arterial vessels. The aim of this investigation was to ascertain the reactions of large arteries and precapillary resistance vessels during treatment with sustained-release Verapamil (Flamon-240 SR, Mepha Ltd).

Design and methods: 30 essential hypertensives (WHO II) aged between 40-65 yrs received 2 months’ treatment with Flamon-240 SR 1-2 tablets daily. Blood pressure was determined auscultatory. Cardiac output (CO) and systemic vascular resistance (SVR) were derived from

Abstracts
P10.10

EFFECT OF THE TREATMENT OF RHEUMATOID ARTHRITIS WITH ANTI-TNF-A INFliximab ON ARTERIAL WALL STIFFNESS PARAMETERS

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Background: Rheumatoid arthritis (RA) is a chronic inflammatory, autoimmune disease, which may lead to arterial dysfunction. Treatment with anti-TNF-α infliximab can influence not only inflammation, disease activity, but also greatly impact arterial wall function.

Aim of the study: To assess whether aortic augmentation index (Alx) and regional carotid-radial pulse wave velocity (PWV) were altered in RA patients treated with infliximab.

Methods: We examined 75 RA patients (age 42.0±10.69 years) with high disease activity (DAS28 >5.10), 16 of whom were treated with infliximab. Alx and PWV were assessed non-invasively by applanation tonometry (Sphygmocor v.7.01, Atcor Medical).

Results: By multiple regression analysis we have found that carotid-radial PWV depends only on mean blood pressure (MBP) and infliximab therapy. To test the influence of infliximab on arterial wall parameters, binary variable indicating the intake of infliximab was added to the list of independent predictors. The same forward analysis was applied after that. It has been established that infliximab reduces the values of PWV as compared with patients not treated with infliximab (7.69±0.69 vs. 8.61±1.02; p=0.001). However, no similar trend was observed for Alx (18.38±12.49 vs. 24.56±11.44; p=0.094). The estimated regression coefficient have implied that given fixed MBP, the mean PWV can be reduced approximately to 0.886 m/s in patients treated with infliximab.

Conclusions: The treatment with anti-TNF-α infliximab can influence the conduit arteries. Carotid-radial PWV may serve as a good marker to decide upon infliximab.

Pathophysiology

P11.01

AMBULATORY ARTERIAL STIFFNESS INDEX (AASI) IS CORRELATED TO EA/EMAX, NOT PULSE WAVE VELOCITY IN PATIENTS WITH RESISTANT HYPERTENSION (RH) AND TYPE-II DIABETES MELLITUS

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Objective: To examine if AASI is correlated to arterial stiffness in patients with RH and type-II diabetes mellitus.

Methods: We included 87 patients. RH was defined according to guidelines from the American Heart Association. Echocardiography was performed using GE Vivid 7and pulse wave analysis using Sphygmocor. All examinations were performed under standardized conditions. All analyses were done blinded offline using Echopac and customized software.

Ambulatory blood pressure (BP) measurement was done using Kivex TM 2430 and SpaceLab 90217. All parameters were adjusted for sex, age, length of disease and heart rate using multiple linear regression. Spearman’s rank correlation was used to estimate correlation between groups. Results: 34 patients had RH and 24 had controlled hypertension (CH) leaving 29 with uncontrolled hypertension. See table 1 for patient characteristics. Patients were comparable with regards to age and body mass index. AASI did not differ significantly between groups. Pulse pressure, mean arterial pressure and length of disease varied significantly between groups. PWV and AIx did not change uniformly. In the case when hypotensive effect was caused by a decrease in CO, FVR did not change uniformly. In the case when hypotensive effect was caused by a decrease in CO, FVR did not change uniformly.

Conclusions: During effective treatment of essential hypertensives with Verapamil contractile activity of forearm large arteries always decreases, whereas precapillary vessels obviously are involved in counterregulation and this masks direct vasodilator effect of Verapamil on arterial smooth muscles.

P11.02

BRAIN WHITE MATTER LESIONS AND ARTERIAL WALL PARAMETERS IN MIGRAINE PATIENTS

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Background: Migraine is a benign neurological disease, however, some migraineurs develop asymptomatic lesions in the deep white matter (DWMLs) whose origins still need to be clarified.

Objective: To evaluate relationship between DWMLs and traditional cardiovascular risk factors, arterial wall parameters (carotid intima-media thickness, distensibility and stiffness (CS), augmentation index (Alx) and aortic pulse wave velocity) and right-to-left shunts (RLS) in migraine patients.

Methods: 114 active migraineurs (mean age 35.9±9.6 years, 22 (19.3%) males, 50 (43.9%) with aura) participated in the study. Magnetic resonance imaging was performed with a 1.5-T scanner. DWMLs load was assessed.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Controlled Hypertension</th>
<th>Resistant hypertension</th>
<th>P</th>
<th>Adjusted P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex (males/females)</td>
<td>19/9</td>
<td>20/7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age (years)</td>
<td>62±10</td>
<td>64±6</td>
<td>0.49</td>
<td></td>
</tr>
<tr>
<td>Body mass index (kg/m²)</td>
<td>34±7</td>
<td>35±5</td>
<td>0.31</td>
<td>0.21</td>
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<tr>
<td>Length of disease (years)</td>
<td>15±4.5</td>
<td>16±7</td>
<td>0.02</td>
<td>0.02</td>
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<tr>
<td>Pulse pressure (mmHg)</td>
<td>90±8</td>
<td>85±9</td>
<td>&lt;0.0001</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Mean arterial pressure (mmHg)</td>
<td>95±5</td>
<td>96±5</td>
<td>&lt;0.0001</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Ambulatory arterial stiffness index</td>
<td>0.35±0.14</td>
<td>0.37±0.13</td>
<td>0.04</td>
<td>0.96</td>
</tr>
<tr>
<td>Heart rate (bpm)</td>
<td>76±11</td>
<td>73±13</td>
<td>0.12</td>
<td>0.24</td>
</tr>
<tr>
<td>Pulse wave velocity (m/s)</td>
<td>9.1±3</td>
<td>9.1±3</td>
<td>0.062</td>
<td>0.39</td>
</tr>
<tr>
<td>Characteristic impedance</td>
<td>0.15±0.03</td>
<td>0.16±0.1</td>
<td>0.021</td>
<td>0.05</td>
</tr>
<tr>
<td>E(0)/E(max)</td>
<td>1.63±0.5</td>
<td>1.86±0.5</td>
<td>0.12</td>
<td>0.06</td>
</tr>
<tr>
<td>E(0)/E(max)</td>
<td>0.1±0.3</td>
<td>0.1±0.3</td>
<td>0.023</td>
<td>0.005</td>
</tr>
<tr>
<td>E(0)/E(max)</td>
<td>1±0.5</td>
<td>1±0.5</td>
<td>0.023</td>
<td>0.005</td>
</tr>
<tr>
<td>E(0)/E(max)</td>
<td>45±11</td>
<td>45±11</td>
<td>&lt;0.0001</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

Ambulatory arterial stiffness index (AASI) is correlated to E(0)/E(max), not pulse wave velocity in patients with resistant hypertension (RH) and type-II diabetes mellitus P 11.01.