BENEFICIAL EFFECTS OF BLOOD PRESSURE REDUCTION ON AORTIC STIFFNESS AND CENTRAL HEMODYNAMICS IN PATIENTS WITH METABOLIC SYNDROME

Poster Contributions
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Background: Metabolic syndrome is associated with increased cardiovascular risk, although its incremental prognostic value over and beyond the clustering risk factors is controversial. Aortic stiffness is independently related to cardiovascular events in several populations, including hypertensive patients and individuals with metabolic syndrome. Data on the effect of antihypertensive treatment on aortic stiffness and central hemodynamics in metabolic syndrome are scarce.

Methods: We measured 80 patients with never treated arterial hypertension and metabolic syndrome, defined according to the ATP III criteria. All patients were subject to full laboratory investigation and evaluation of aortic stiffness and central hemodynamics at baseline and 6 months after antihypertensive treatment. Aortic stiffness was assessed by measuring carotid-femoral pulse wave velocity (PWV) using the Complior device. Central (aortic) blood pressures (BP) and heart-rate corrected augmentation index (AIx75), as an index of wave reflections, were measured by the Sphygmocor device. Inflammatory status was assessed by the measurement of high sensitivity C-reactive protein (hsCRP).

Results: All patients were treated with ACE inhibitors or ARBs ±CCBs or HCTZ until the BP goal is achieved. After 6 months of treatment there was a significant reduction both in the brachial (bSBP) and aortic (aoSBP) systolic BP (bSBP: from 159.3±15.0 to 130.3±9.4 mmHg, p<0.001 and aoSBP: from 148.3±16.4 to 120.0±9.8 mmHg, p<0.001). Accordingly, PWV and AIx75 showed a significant decrease after 6 months of treatment (PWV: from 8.78±1.38 to 8.16±1.48 m/s, p<0.01 and AIx75: from 27.03±8.63 to 22.62±8.40 %, p<0.01). No difference was observed in the levels of total cholesterol, plasma glucose and hsCRP (p=NS for all).

Conclusion: Blood pressure reduction per se has favorable effects on aortic stiffness and central hemodynamics in hypertensive patients with metabolic syndrome. Considering the adverse prognosis of aortic stiffness in patients with metabolic syndrome, the present findings highlight the importance of lowering blood pressure in these patients in order to improve their cardiovascular risk.