24 h blood pressure ($P < 0.001$), basal glucose levels ($R = 0.28$, $P < 0.001$) and postural plasma renin activity ($R = 0.19$, $P < 0.01$) and ARR ($R = 0.14$, $P < 0.05$). Multiple correlation analysis showed that age ($P=0.543$, $P < 0.001$), mean blood pressure ($R=0.335$, $P < 0.001$), basal glucose levels ($R=0.130$, $P = 0.01$) and ARR ($R=0.131$, $P < 0.05$) were independently associated with pulse wave velocity PWV in severe EH.

Conclusion: Low-renin hypertension is one of the most common form of severe essential hypertension. The PWV was negatively related to plasma renin activity and positively to aldosterone-renin ratio, but not to plasma aldosterone levels. Age, mean blood pressure, basal glycemia and aldosterone-renin ratio are independent predictors of PWV in severe form of essential hypertension.

**PP.10.411 NEBIVOLOL BUT NOT METOPROLOL DECREASES CENTRAL BLOOD PRESSURE AND LEFT VENTRICULAR WALL THICKNESS IN PATIENTS WITH ESSENTIAL HYPERTENSION**

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Objective: It has been demonstrated that the vasodilating β-blocker nebivolol (NEB) significantly reduces central blood pressure (BP) compared to atenolol, despite their similar effects on peripheral BP. However, no such data has been published on metoprolol (MET), which is a more widely used cardioselective β-blocker in our region. The main aim of the present study was to compare the effects of the β-blocker NEB and MET succinate on central BP, arterial stiffness and left ventricular wall thickness in patients with essential hypertension.

Methods: A total of 80 patients (41 male and 39 female) aged 30–65 years, who had never been treated for mild to moderate essential hypertension, were randomized into two treatment groups receiving either NEB 5 mg or MET succinate 50–100 mg daily for 12 months. Central BP, augmentation index (AIx) and carotid-femoral pulse wave velocity (PWV) were measured (Sphygmocor Ps, ArtCor) and echocardiographic examination was performed (Sonos 7500, Philips) at baseline and at the end of the study.

Results: NEB and MET significantly reduced heart rate, brachial systolic BP and diastolic BP to the same degree. However, reduction in central systolic BP ($P = 0.0006$), central diastolic BP ($P = 0.01$) and central pulse pressure ($P = 0.0025$) was significant only in the NEB group. Moreover, there was a significant reduction of left ventricular posterior wall thickness ($p=0.0002$) and a trend for reduction of left ventricular septal wall thickness ($p = 0.06$) only in the NEB group. No significant changes in AIx or PWV were detected in either treatment group.

Conclusion: Our study expands earlier observations and shows that despite the similar effect of both drugs on brachial BP and arterial stiffness, NEB has a greater impact on central BP and left ventricular wall thickness than MET. Thus, β-blockers with vasodilating properties, such as NEB, may offer a clear advantage over conventional β-blockers in antihypertensive therapy.

**PP.10.412 TUMOR NECROSIS FACTOR-ALPHA ANTAGONISTS IMPROVE AORTIC STIFFNESS IN PATIENTS WITH INFLAMMATORY ARTHROPATHIES: A ONE YEAR CONTROLLED STUDY**

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Background: Patients with chronic inflammatory arthropathies such as rheumatoid arthritis, ankylosing spondylitis and psoriatic arthritis have increased cardiovascular morbidity and mortality. Effective anti-inflammatory therapy seems to be beneficial not only to counteract the progression of the rheumatic disease, but also with regard to the cardiovascular system.

Aim: To examine the effect of one year treatment with Tumor Necrosis Factor (TNF-α) antagonists on arterial stiffness and carotid intima media thickness (cIMT) in patients with inflammatory arthropathies.

Methods: A total of 35 patients with RA, AS or PsA and clinical indication for anti-TNF-α therapy were included. 36 patients started with anti-TNF-α therapy and were compared with a non-treatment group of 19 patients. Aortic pulse wave velocity (aPWV) and augmentation index (AIx) were measured at baseline and after 3, 6, 9 and 12 months with the Sphygmocor device.

Furthermore, cIMT was measured at baseline and at 6 and 12 months with the Art.Lab system, and disease activity was assessed at each visit.

Results: Mean ± SD age in the treatment/control group was 47.2 ± 12.2/51.20 ± 14.1 years ($P = 0.53$), 42.9/50.0 % ($P = 0.63$) were females and disease duration was 11.9 ± 9.6/10.6 ± 10.1 years ($P = 0.31$). After 12 months, aPWV was reduced in the treatment group, but not in the control group (+0.52 ± 0.38 m/s versus 0.04 ± 0.48 m/s, respectively; $P = 0.001$). AIx and cIMT did not change in any of the groups. CRP and Disease Activity Score 28 joints (DAS28) were significantly reduced in the treatment group after 12 months (+8.2 ± 19.2 mg/L $P < 0.001$ and -1.1 ± 0.9 $P = 0.004$). The greatest reduction in aPWV was observed from baseline to 3 months and the improvement was maintained the entire observation period (figure 1).

Conclusion: These findings indicate that anti-TNF-α therapy improves aortic stiffness in patients with inflammatory arthropathies concurrent with reduction in inflammatory markers.

**PP.10.413 NON INVASIVE STUDY OF CORONARY FLOW RESERVE AND AORTIC STIFFNESS IN PATIENTS WITH CHEST PAIN AND NEAR NORMAL CORONARY ARTERIES**

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Increased aortic stiffness is an independent predictor of cardiovascular events. On the other hand, a decrease in coronary flow reserve (CFR) in patients without significant coronary artery disease (CAD), has been found as a risk factor of long-term myocardial infarction (36–48 months). Experimental studies have shown that a decreased coronary blood flow was associated with a stiffer aorta, but such a relationship has never been investigated in patients without angiography-proven CAD.

The aim of our study was to look for a significant association between aortic stiffness and CFR, in patients referred for chest pain, but without any CAD at angiography.

Forty-five consecutive patients (27 men, 60 ± 16 years of age) were recruited; all of them fulfilled following criteria: history of angina-like chest pain, normal coronary artery angiography or presence of nonsignificant (<50%) stenosis in any major vessels.

All patients underwent a myocardial echocardiography at rest and during adenosine using standard 2D- echography, as well as a CFR evaluation of the left anterior descending coronary artery using doppler. The aortic stiffness was analysed by the measure of the pulse wave velocity (PWV), using doppler ultrasound method.

Mean CFR was 2.69 ± 0.78 and 10 patients were found with an abnormal CFR (≥3.02). Patients with a decreased CFR had a significantly higher PWV, as compared with those having a normal CFR (≥2.2), (95% CI: 8.3–14.1 vs. 7.6–9.8 m/s $p = 0.03$). Furthermore, there was a positive correlation between aortic stiffness and disorders of left ventricular diastolic function (E/A and PWV: $r = 0.53 p < 0.0001$, E/Ea and PWV: $r = 0.33 p < 0.02$, TRI and PWV: $r = 0.36 p = 0.01$, E mitral deceleration time and PWV: $r = 0.62 p < 0.0001$).

To conclude: in symptomatic patients with angiographically normal or near normal coronary arteries, a higher aortic stiffness has been found to be associated with a lower CFR and more pronounced diastolic TTE parameters alteration. Accordingly, measurement of PWV in such patients should help to propose an appropriate cardiological follow-up.