P.033: SELECTIVE CYCLOOXYGENASE-2 INHIBITION BY CELECOXIB ABROGATES THE ACUTE SMOKING-INDUCED VASCULAR DYSFUNCTION

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Background: Erectile dysfunction (ED) has been reported as the first sign of a generalized vascular disease. Aortic stiffness and wave reflections are independent markers and prognosticators of cardiovascular risk. The association between ED and measures of aortic stiffness and wave reflections has not been investigated.

Methods: A total of 107 men with ED were evaluated for penile vascular disease severity by penile Doppler ultrasound: 40 men (aged 61±9 years) with coronary artery disease (CAD) and 67 men (aged 57±9 years) without CAD. Aortic stiffness was evaluated with carotid-femoral pulse wave velocity (PWV) and wave reflections with augmentation index (Alx) of the aortic pressure waveform using high-fidelity pulse wave analysis.

Results: Patients with CAD had decreased peak systolic velocity (PSV) (27 vs 34 cm/s, p < 0.001), and increased PWV (9.0 vs 8.4 m/s, p = 0.001) and Alx (30 vs 24%, p < 0.01) compared with men without CAD. PSV was correlated with age (r = –0.24, p < 0.05), Framingham risk score (r = 0.27, p < 0.05), PWV (r = 0.31, p < 0.001) and Alx (r = 0.33, p < 0.001). In multivariate linear regression models adjusting for age, height, heart rate, mean pressure and cardiovascular risk factors (BMI, total cholesterol, HDL, logCRP, hypertension, diabetes and intensity of smoking), penile Doppler results were significantly associated with both Alx (β = 0.265, p = 0.004) and PWV (β = –0.250, p = 0.009).

Conclusions: Our study shows that aortic stiffness and wave reflections correlate significantly with increasing severity of penile vascular disease as measured by penile Doppler. This finding provides further insights into the pathophysiology of ED and may have implications for the cardiovascular risk in these patients.

P.032 CORRELATION OF AORTIC STIFFNESS WITH SEVERITY OF ERECTILE DYSFUNCTION

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Background: Accumulating evidence suggests that erectile dysfunction (ED) may be an early manifestation of generalized vascular disease. Aortic stiffness is an independent marker and prognosticator of cardiovascular risk. The association of ED with aortic stiffness has not been defined.

Methods: A total of 164 men (mean age 59±9 yrs) affected by non–coronary artery disease (CAD) and 87 men (mean age 11 yrs) without CAD. Aortic stiffness was evaluated with carotid-femoral pulse wave velocity (PWV) and wave reflections with augmentation index (Alx) of the aortic pressure waveform using high-fidelity pulse wave analysis.

Results: There was a stepwise increase in PWV from mild ED, to mild-moderate and moderate ED and to severe ED (p < 0.001, right figure). In univariate analysis, a negative correlation between PWV and IIEF-5 score was observed (r = –0.37, p < 0.001). Moreover, in separate backward elimination multiple regression model, PWV was significantly associated with IIEF-5 score (β = –0.223, P = 0.006, R2 = 0.41), after controlling for age, body-mass index, mean pressure, cholesterol, triglycerides, C-reactive protein, hypertension, diabetes, history of smoking, anti-hypertensive agents and statines.

Conclusions: ED is associated with impaired aortic elastic properties. This finding provides further evidence for the potential link between ED and cardiovascular risk.

P.033 SELECTIVE CYCLOOXYGENASE-2 INHIBITION BY CELECOXIB ARROGATES THE ACUTE SMOKING-INDUCED VASCULAR DYSFUNCTION

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Background: The cardiovascular toxicity that is associated with cyclo-oxygenase-2 (COX-2) inhibitors is perhaps not a class effect, but may be rather limited to certain drugs in the class. Endothelial function and aortic stiffness are predictors of cardiovascular risk. The effect of celecoxib, a selective COX-2 inhibitor on acute smoking-induced vascular impairment is unknown.

Methods: We studied the effect of 200 mg of celecoxib in 12 healthy smokers (mean age 29.3±5 yrs) according to a randomized, double-blind, crossover fashion. Endothelial function and aortic stiffness were evaluated with flow-mediated dilatation (FMD) of the brachial artery and carotid-femoral pulse wave velocity (PWV) respectively. Measurements were done before celecoxib/placebo and immediately after a regular cigarette (tar 14 mg, nicotine 1 mg) that was smoked 3 hours after drug administration.

Results: Celecoxib blunted the smoking-induced increase in systolic BP (p < 0.05), but not in diastolic BP (p > 0.5). Celecoxib abrogated the smoking-induced decrease in FMD (decrease by 2.1 vs 0.6%, p < 0.05, left figure). Moreover, the increase in PWV after smoking was significantly lower with celecoxib (increase by 0.69 vs 2.9 vs m/s, p < 0.05, right figure).

Conclusion: Selective COX-2 inhibition by celecoxib abolishes the endothelial dysfunction and aortic stiffening that is induced acutely by smoking. This finding provides further insights into the cardiovascular profile of this drug.

P.034 ERECTILE DYSFUNCTION IS RELATED TO ARTERIAL STIFFNESS AND MARKERS OF SYSTEMIC VASCULAR INFLAMMATION AND ENDOTHelial DYSFUNCTION IN PATIENTS WITH METABOLIC SYNDROME

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Background: Erectile dysfunction (ED) has been reported as the first sign of a generalized vascular disease. Arterial stiffness may be an early marker for vascular changes associated with metabolic syndrome (MetS). We evaluated associations between ED, arterial stiffness and markers of systemic vascular inflammation and endothelial dysfunction in patients with MetS.

Methods: Two groups of subjects with MetS were investigated: 39 men (mean age: 59 yrs) with ED of vascular origin and 30 men (mean age: 57 yrs) with normal erectile function. Aortic stiffness was evaluated with carotid-femoral pulse wave velocity (PWV) using high-fidelity pulse wave analysis. Plasma levels of interleukin 1α (IL-1α), tumor necrosis factor-α (TNF-α) and soluble vascular and intercellular adhesion molecules (sVCAM-1, sICAM-1) were measured with ELISA.

Results: The mean erectile function score (IIEF-5) was 13 (range 6-20) in men with MetS and ED and 23 (range 22-25) in men with MetS and normal erectile function. ED patients had increased PWV compared to patients