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Title: Relationship between sympathetic activity and blood pressure in OSA patients

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Body: Obstructive sleep apnea syndrome (OSAS) is associated with high Sympathetic Activity (SA) and a subsequent risk of hypertension and atherosclerosis. Objectives of this study were to assess the relationship between SA, Blood Pressure (BP) and early cardiovascular disease markers in OSA We studied 38 OSA patients and 17 aged-matched controls. OSA patients were otherwise healthy, without evidence of clinic hypertension. SA was measured by direct peroneal microneurography: Muscle Sympathetic Nerve Activity (MSNA) and all subjects underwent a full polysomnography, 24h Ambulatory Blood Pressure Monitoring (ABPM), arterial stiffness by Pulse Wave Velocity (PWV), vascular reactivity by Peripheral Arterial Tone (PAT) and arterial carotid Intima Media Thickness (IMT). Groups were comparable for all but not for BMI (25.92 ± 2.71 vs 24.20 ± 2.39 kg/m², p= 0.02). Office Systolic and diastolic BP were the same in patients and controls, while on ABPM 24h-diastolic BP was higher in OSAS group (79.92 ± 8.73 vs 74.59 ± 8.83, p=0.046). There was a strong correlation between SA and all BP parameters: systolic and diastolic office BP (R=0.39 and 0.42,p<0.01) and systolic and diastolic 24-ABPM (R=0.38 and 0.46, p<0.001). Burst/min were correlated with PWV and IMT (R=0.52; p=0.036). Preliminary data on 15 OSA and 9 controls were obtained after 6 month and show that CPAP treatment reduced: SA (Bursts/min 40.49 ± 10.63 vs 35.47 ± 10.06, p<0.05), Diurnal DBP (86.86±11.97 vs 82.07±11.12, P=0.03) and nocturnal dipping (-17.14±5.33 vs -11.07±3.54, P=0.002) In “Healthy” OSAS SA is likely to play a role in the pathogenesis of hypertension and atherosclerosis. SA reduction induced by CPAP, may reduce the risk of cardiovascular diseases.