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Title: Anthropometric markers of adiposity and visceral adiposity index (VAI) in patients with OSA

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Body: Visceral adiposity is frequent in patients with obstructive sleep apnea (OSA), and OSA is associated with the Metabolic Syndrome (MetS) in both genders. The Visceral Adiposity Index (VAI) has been recently proposed as a marker of cardiometabolic risk in epidemiologic studies and patients with metabolic disorders. Its calculation is based on the measurement of body mass index (BMI), waist circumference (WC) and serum lipids. In non-diabetic patients with suspected OSA under no treatment for dyslipidemia (n=398; mean age±SD: 49.8±13.0 years, 325 males), we calculated VAI and analyzed its correlation with OSA severity and anthropometrics. Patients were studied by full polysomnography, and general and visceral adiposity measures were obtained (BMI, neck and waist circumferences). Metabolic variables were assessed, and both VAI and the Metabolic Index (NHANES-ATP III) were calculated. The sample included controls (AHI<10, n=41), and patients with mild-moderate (AHI between 10 and 30, n=116) and severe OSA (AHI >30, n=241). VAI increased with insulin resistance (HOMA-IR) and the Metabolic Index. In both genders VAI was associated with MetS but not with OSA severity. In men, BMI, neck, waist circumferences and waist/hip ratio were associated with OSA. In women neck circumference was the only anthropometric marker significantly associated with OSA severity. Among subjects with MetS, anthropometric measures lost their association with OSA severity in men, while neck size maintained its correlation with OSA severity in women. These data suggest gender-related interactions between OSA, obesity and metabolic abnormalities. VAI was a good marker of MetS but not of OSA.