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## Arterial stiffness parameters in various obesity phenotypes: Metabolically healthy obese individuals, but are they really?

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**Objective:** Not all obese individuals demonstrate similar metabolic profiles. The present study was designed to investigate an association between various obesity phenotypes and vascular atherosclerotic changes.

**Design and Methods:** The 246 study participants were divided into three groups according to presence of obesity and metabolic syndrome (MS) – Group 1 included 91 non-obese subjects without MS; Group 2 included 64 obese subjects without MS; and Group 3 consisted 91 obese subjects with MS. Augmentation index (AI) was performed using SphygmoCor (version 7.1, AtCor Medical, Sydney, Australia).

**Results:** AI differed significantly between groups, such that AI increased from Group 1 to Group 3 in a continuous fashion. The metabolically benign obese subjects had significantly higher AI than the metabolically benign non-obese one ( $p=0.016$ ). Combination of obesity and MS was associated with further deterioration in terms of AI ( $p<0.0001$ ). In Univariate GLM analysis, significant by-group differences in AI persisted even after adjustment for age, sex and mean blood pressure.

**Conclusions:** Metabolically benign obese individuals show an increased arterial stiffness compared to non-obese subjects, despite a comparable cardiometabolic risk profile. Obesity, per se, is associated with an adverse effect on blood vessels, independently of age, sex, blood pressure, parameters of glucose homeostasis and lipids.

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