

PULSE PRESSURE AND PULSATILE STRESS IN OVERWEIGHT/OBESE PATIENTS VERSUS LEAN SUBJECTS IN ABSENCE OF HYPERTENSION OR DIABETES.

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Background :

Arterial pulse pressure (PP) is an independent cardiovascular risk factor, even in nonhypertensive individuals. We compared PP and PPxHR (heart rate) double product (“pulsatile stress”) during an active orthostatic test in overweight/obese patients and in lean individuals matched for age (40-60 years) and gender (sex ratio 1/1).

Methods : 40 overweight/obese patients (mean age 50 years, BMI 28.6 kg/m²), without hypertension or diabetes, were compared to 40 lean subjects (50 years, BMI 22.2 kg/m²). All patients were evaluated with a continuous arterial blood pressure monitoring (Finapres®) in standing (1min), squatting (1min) and again standing position (1min). Baroreflex sensitivity was measured by analysing the relationship between HR and systolic blood pressure (SBP) changes during the transition from squatting to standing.

Results : Overall, overweight/obese patients showed similar mean BP (86 vs 85 mmHg, NS), PP (52 vs 52 mm Hg, NS) and PPxHR product (4321 vs 4121 mmHg/min, NS) as compared to lean controls. Squatting-induced rises in mean BP (+ 7 vs + 5 mmHg, NS) and PP (+ 6 vs + 7 mmHg, NS) were also similar in both groups. Interestingly, post-squatting baroreflex gain was lower in overweight/obese nondiabetic patients than in lean subjects (2.97 vs 4.11 mmHg*min⁻¹, p=0.0332).

Conclusion : Middle-aged overweight/obese patients have similar markers of arterial stiffness and pulsatile stress as compared to lean controls, suggesting that obesity per se has no or only a modest impact on these parameters, in absence of chronic hyperglycaemia and hypertension. In contrast, some autonomic dysfunction may be detected.