Effects of a 3-week in-hospital body weight reduction program on cardiovascular risk factors, muscle performance, and fatigue: a retrospective study in a population of obese adults with or without metabolic syndrome.

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Background: In clinical practice, there is the diffuse conviction that obese subjects with metabolic syndrome may be more difficult to treat.

Objectives and Methods: The aim of the present study was that to investigate the effectiveness of a 3-week in-hospital body weight reduction program (BWRP) in a large population of obese subjects with and without metabolic syndrome (*n* = 1922; 222 men and 1700 women, age range 18-83 yr). Outcomes such as body mass index (BMI), total (TOT) and HDL cholesterol, systolic and diastolic blood pressures (SBP and DBP, respectively), coronary heart disease (CHD) score, fatigue severity score (FSS), and stair climbing test (SCT) time were evaluated before and after the intervention (Δ). A sex-, BMI-, and age-related stratification of the obese population with or without metabolic syndrome was applied.

Results: When compared to obese subjects without metabolic syndrome, at the basal conditions, obese subjects had a poorer cardiometabolic profile, as demonstrated by higher triglycerides, TOT-cholesterol, DBP, SBP, and CHD score, and a more compromised muscle performance (evaluated by SCT), associated with more perception of fatigue (measured by FSS). Nevertheless, obese subjects with metabolic syndrome obtained more benefits from BWRP than those without metabolic syndrome for some outcomes (i.e., ΔTOT-cholesterol, ΔSBP, and ΔCHD score). Despite these differences, the BWRP-induced weight loss was similar between the two groups (i.e., ΔBMI) as well as the gain of muscle performance (i.e., ΔSCT) and the reduction of fatigue (i.e., ΔFSS). Interestingly, the potentially deleterious fall in HDL-cholesterol levels after BWRP was less evident in obese subjects with metabolic syndrome than those without metabolic syndrome. When pooling all data, the ΔCHD score was associated with age, sex, and metabolic syndrome. The remaining outcomes, such as ΔBMI, ΔFSS, and ΔSCT time, were associated with sex and age but not with metabolic syndrome. Finally, ΔBMI was positively correlated with ΔCHD score, ΔFSS, and ΔSCT time in both obese subjects without metabolic syndrome and obese subjects with metabolic syndrome.

Conclusions: When comparing obese subjects undergoing a BWRP, metabolic syndrome is not a negative predictive factor affecting the effectiveness of this intervention in terms of weight loss, muscle performance, and psychological well-being.