Psychosocial profile of the metabolically healthy but obese postmenopausal woman

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A unique subset of obese individuals has been identified that appears to have a normal metabolic profile [1,2]. These individuals, now known as “Metabolically healthy but obese” (MHO) individuals, despite having excessive body fatness, display a favorable metabolic profile characterized by normal levels of insulin sensitivity, a favorable lipid and inflammation profile as well as no hypertension. It is presently unclear as to why MHO individuals appear to be “protected” to the development of metabolic disturbances associated with obesity. It seems only two studies have examined several metabolic characteristics associated with the normal metabolic profile of the MHO individual including some potential causal factors [1,2]. However, no data appear to be currently available on the psychosocial profile of the MHO individual. Several studies have shown that psychosocial factors are associated with insulin resistance and cardiovascular disease [3-5]. These studies provide tantalizing evidence that several psychosocial factors may be implicated in the normal metabolic profile of some obese individuals. Therefore, the purpose of this study was to investigate the psychosocial profile of the MHO individual in obese postmenopausal women. We hypothesized that the MHO phenotype will be associated with a favorable psychosocial profile.

We examined the psychosocial characteristics in a sample of 81 obese (BMI ≥ 27 kg/m²), non-diabetic, non-smoking, sedentary postmenopausal women with stable weight. As previously described and analyzed [2], subjects were classified as MHO or as “at risk” based on the upper and lower quartiles (M ≥ 12.62 vs. M ≤ 9.29 mg/min/FFM, respectively) of insulin sensitivity as measured by the hyperinsulinemic/euglycaemic clamp technique. Thereafter, we determined 1) body composition (by dual energy x-ray absorptiometry), and 2) psychosocial factors using validated self-administered questionnaires that measured quality of life (Medical Outcomes Study General Health Survey), perceived stress (Cohen et al. Perceived Stress Scale), self-esteem (Rosenberg Self-Esteem Scale), body-esteem (Mendelson et al. Body-Esteem Scale), perceived benefits of controlling weight (six item scale), perceived risks for developing heart disease and diabetes (two item scale), and self-efficacy that is perceived capacity for controlling body weight (six item scale). The Cronbach alpha coefficients, internal consistency reliability, for each measure varied between 0.73 to 0.91. It should be noted that higher scores for the psychosocial measures signify a more favourable profile, except for perceived stress, self-esteem and perceived risk. Level of education was also measured.

The physical and psychosocial characteristics of MHO (n = 21) and “at risk” (n = 20) individuals are described as follows. Both groups of women were comparable for age (57.4 ± 6.3 vs. 59.6 ± 5.1 yrs), body mass index (32.6 ± 4.0 vs. 34.8 ± 4.1 kg/m²), fat mass (40.9 ± 8.6 vs. 41.3 ± 8.3 kg), level of education (48 vs. 42% less than University) as well as all psychosocial factors, which included quality of life (80.7 ± 12.7 vs. 78.8 ± 10.2), perceived stress (19.5 ± 7.2 vs. 19.7 ± 9.0), self-esteem (1.9 ± 0.4 vs. 1.8 ± 0.5), body esteem (1.5 ± 0.6 vs. 1.1 ± 0.5), perceived benefits (3.7 ± 0.4 vs. 3.9 ± 0.2), perceived risk (2.8 ± 0.9 vs. 3.3 ± 0.9), self-efficacy (2.8 ± 0.4 vs. 2.7 ± 0.4) and number of meals (2.8 ± 0.4 vs. 2.9 ± 0.3), respectively. By design, insulin sensitivity was significantly higher in MHO individuals compared to “at risk” subjects (15.4 ± 2.4 vs. 7.5 ± 1.2 mg/min/FFM, respectively) (P < 0.001).

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Recent studies have reported that psychosocial factors are associated with metabolic abnormalities [3,4]. In the present study, we hypothesized that the MHO subject will be associated with a favorable psychosocial profile. However, results in our limited number of subjects do not support this hypothesis. That is, no significant differences were observed in any of the psychosocial variables between MHO and “at risk” individuals. This could suggest that other factors (i.e., lifestyle, biological and/or genetic factors) are implicated in the protective profile of the MHO individual. Furthermore, MHO individuals compared to those “at risk” do not appear to have a different pattern of energy expenditure [1], however the role of diet composition remains to be assessed. Thus, it remains plausible that psychosocial factors may be indirectly related to the MHO profile via lifestyle behaviours. Ongoing studies with a larger sample and a longitudinal follow-up in MHO and “at risk” individuals should help to clarify associations between metabolic, lifestyle, and psychosocial profiles.

References