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Metabolically healthy obesity (MHO) in the Malmo Diet Cancer Study - epidemiology and prospective risks

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Topic(s):
Obesity

Citation:
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Background/aims: Metabolically healthy obesity (MHO) is a controversial topic, since the underlying mechanisms and contributing factors behind this phenotype remain unclear. Here we aimed to investigate the characteristics of MHO, as well as prospective mortality risk.

Method: A cross-sectional analysis was carried out in a subsample of 3,812 obese subjects (BMI =30 kg/m²) selected from the Malmo Diet Cancer Study (MDCS) cohort (n=28,403). Subjects with MHO (n=1182; mean age 58±7 years) were defined by having no records of hospitalization in the national Swedish Hospital Discharge Register prior to the baseline examination, other than hospitalization due to normal deliveries or external injuries. MHO subjects were further compared to subjects with metabolically unhealthy obesity, MUO (n=2,630; mean age 60±7 years), and all non-obese individuals (n=24,591; mean age 58±8 years) in the cohort study. Moreover, prospective risk analyses for incident morbidity and mortality were carried out by Cox regression.

Results: Compared to MUO individuals (one-way ANOVA), MHO individuals were younger (58±7 years vs. 60±7 years, p=0.001) and more likely to be male (41.2% vs 37.1%, p=0.016). MHO individuals reported a significantly lower proportion of sedentary life style than MUO (17.4% vs. 21.9%, p=0.009), and were more likely to hold a university degree (13.4% vs. 9.4%, p=0.003). Furthermore, MHO individuals had significantly lower HbA1c (p=0.012), fasting plasma glucose (p=0.001) and triglyceride levels (p=0.011) as compared to their MOU counterparts. Cox-regression analysis adjusted for age, sex, smoking and blood pressure (follow-up time 20±6 years) showed both a significantly lower all-cause mortality risk for MHO individuals as compared to MUO (HR 0.74, 95%CI: 0.66-0.82; p=0.001), as well as lower total incident cardiovascular (CV) morbidity risk (HR 0.69, 95%CI: 0.60-0.80; p=0.001). Interestingly, when comparing MHO individuals to all non-obese individuals in the MDSCS, there were no significant differences in neither mortality risk (p=0.9), nor incident CV morbidity risk (p=0.7).

Conclusion: Compared to MUO individuals, MHO individuals presented with a higher level of education- and physical activity together with a more favorable lipid- and glucose profile. MHO individuals were at significantly lower prospective risk of total- and cardiovascular mortality during 20-years follow-up, as compared to MUO individuals. Notably, no significant differences could be seen in mortality and CV morbidity risks when comparing MHO subjects to all non-obese individuals in the total cohort.
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