Reviewer’s report

Title: Dietary patterns and physical activity in the metabolically (un)healthy obese: The Dutch Lifelines Cohort Study

Version: 0 Date: 11 Nov 2017

Reviewer: Qin Xiang Ng

Reviewer's report:

General comments:

Metabolically healthy obese (MHO) phenotype subjects constitute a fascinating group for medical research. As is concordant with the findings of this study, it seems to be more prevalent in women than men, and its prevalence decreases with age.

Specific comments:

Abstract

- Please change "modifiable factors may be contributing" to "modifiable factors may be at play."

- Please change "tirtile" to "tertile".

Introduction

- It should be mentioned that MHO individuals are not 'without risk' because they still present a risk for mortality, as shown by a recent meta-analysis (Zheng R, Zhou D, Zhu Y. The long-term prognosis of cardiovascular disease and all-cause mortality for metabolically healthy obesity: a systematic review and meta-analysis. J Epidemiol Community Health. 2016 Apr 28;jech-2015). These individuals are also exposed to other obesity-associated complications, such as osteoarthritis and obstructive sleep apnea.

- Please change "Which determinants account for the metabolic differences observed between MHO and MUO is uncertain" to "The determinants accounting for the metabolic differences observed between MHO and MUO remain uncertain".
Methods

- "Differences between groups were tested by t-test for continuous variables or Kruskal-Wallis test when appropriate, and Chi-Square test for categorical variables." With multiple t-tests, the likelihood of incorrectly rejecting a null hypothesis (i.e., making a Type I error) increases. Bonferroni correction should have been done to compensate for this.

Discussion

- In the discussion of limitations, the difficulty to adequately standardize the identification of MHO individuals should be mentioned. This may render findings and/or conclusions difficult to interpret. Besides the presence of an obese state (high BMI), different methods (three insulin sensitivity indices: hyperinsulinemic-euglycemic clamp, OGTT and HOMA and two methods based on several metabolic risk factors) have been used to identify MHO individuals. The clinical relevance and feasibility of these methods should also be discussed if these findings were to be translated into clinical practice.

- As seen in Table 1, perhaps, it could be suggested that waist circumference be excluded as a potential marker because most obese individuals have large waist circumferences; and thus this phenotype becomes non-discriminatory in the identification of MHO individuals.

- In addition, for future work, hard end points, such as incidence of diabetes and CVS disease or mortality should be highlighted as the criteria that might be the most clinically useful.

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