The Journal of Community Health Management 2023;10(1):37–38

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The Journal of Community Health Management

Journal homepage: https://www.jchm.in/

Short Communication

Exploring the controversies surrounding metabolically healthy obesity

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ARTICLE INFO

Article history:
Received 06-04-2023
Accepted 20-04-2023
Available online 28-04-2023

1. Introduction

Obesity is a major public health concern worldwide, with an estimated 2 billion adults classified as overweight or obese in 2016. Obesity is associated with a range of health complications, including type 2 diabetes, cardiovascular disease, and certain cancers. However, there is growing recognition that not all individuals who are classified as obese based on body mass index (BMI) are at equal risk for these complications. Some individuals who are classified as obese also exhibit a healthy metabolic profile, which includes normal levels of blood pressure, triglycerides, fasting glucose, and high-density lipoprotein (HDL) cholesterol. This phenomenon is known as metabolically healthy obesity (MHO), or "healthy obesity".[1] This article will explore the concept of MHO, its epidemiology, and the controversies surrounding its clinical implications.

2. Epidemiology

MHO is a relatively common phenotype, with prevalence estimates ranging from 6% to 75% depending on the population studied and the criteria used to define metabolic health. Phillips et al. proposed an overview of the epidemiology, determinants, and implications of MHO across the life course. The study found that MHO was more common in younger individuals, females, and those with lower levels of visceral adiposity. The study also found that MHO was associated with a lower risk of all-cause mortality and cardiovascular disease compared to metabolically unhealthy obesity, but the risk was still higher than for metabolically healthy non-obese individuals.[2]

3. Mechanisms

The mechanisms underlying MHO are not fully understood, but there are several hypotheses. One hypothesis is that MHO individuals have a lower degree of adipose tissue dysfunction and inflammation compared to metabolically unhealthy obese individuals.[3] Another hypothesis is that MHO individuals have a higher degree of insulin sensitivity and a more favourable lipid profile than metabolically unhealthy obese individuals.[4] However, these hypotheses are still subject to debate and require further investigation.

4. Clinical Implications

The clinical implications of MHO are controversial, with some studies suggesting that MHO is a benign condition, while others argue that it is still associated with increased risk for cardiovascular disease and other health complications. Eckel et al. conducted a systematic review and meta-analysis on MHO and its association with cardiovascular events. The study analysed data from 15 cohort studies and included over 66,000 participants with a follow-up period ranging from 2.6 to 30 years. The

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https://doi.org/10.18231/j.jchm.2023.008

study found that MHO was associated with a reduced risk of cardiovascular events when compared to metabolically unhealthy obesity. The study also found that the risk was still higher than for individuals who were metabolically healthy and not obese.[5]

Kramer et al. conducted a systematic review and meta-analysis to determine whether MHO is a benign condition. The study analysed data from 8 cohort studies and included over 61,000 participants. The study found that MHO was associated with a higher risk of all-cause mortality than metabolically healthy non-obese individuals. However, the risk was lower than for individuals who were metabolically unhealthy and either obese or non-obese.[6]

Ortega et al. investigated the role of fitness in the cardiovascular prognosis of MHO individuals. The study analyzed data from 43,265 individuals and found that higher levels of fitness were associated with a reduced risk of cardiovascular events in MHO individuals. The study also found that MHO individuals with higher levels of fitness had a similar cardiovascular risk profile to metabolically healthy non-obese individuals.[7]

Primeau et al. characterized the profile of MHO individuals. The study analyzed data from 288 obese individuals and found that MHO individuals were more likely to be female, younger, and have a lower waist circumference compared to metabolically unhealthy obese individuals. The study also found that MHO individuals had a more favourable lipid profile, higher levels of adiponectin, and lower levels of C-reactive protein compared to metabolically unhealthy obese individuals.[8]

The controversies surrounding MHO and its clinical implications have led to debate over how to classify and manage individuals with MHO. Some experts argue that MHO should be recognized as a distinct phenotype and that these individuals should be treated differently than metabolically unhealthy obese individuals. Others argue that MHO is still associated with increased health risks and that individuals with MHO should be encouraged to lose weight and improve their metabolic health.

5. Conclusion

In conclusion, MHO is a relatively common phenotype that is associated with a healthy metabolic profile despite being classified as obese based on BMI. While the mechanisms underlying MHO are not fully understood, there is evidence to suggest that MHO individuals have a lower degree of adipose tissue dysfunction and inflammation and a higher degree of insulin sensitivity compared to metabolically unhealthy obese individuals. The clinical implications of MHO are controversial, with some studies suggesting that MHO is a benign condition, while others argue that it is still associated with increased risk for cardiovascular disease and other health complications. Further research is needed to better understand the mechanisms underlying MHO and its clinical implications.

6. Source of Funding

None.

7. Conflict of Interest

None.

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Cite this article: Danasekaran R. Exploring the controversies surrounding metabolically healthy obesity. *J Community Health Manag* 2023;10(1):37-38.