COMMENT & RESPONSE

Potential Bias About the Association Between Weight Loss Surgery and COVID-19 Infection

To the Editor We read with great interest the article by Aminian et al1 about whether weight loss surgery is associated with reduced risk and severity of COVID-19 infection among patients with obesity. The study is undeniably fascinating owing to raising awareness of weight loss surgery and COVID-19 infection. However, some points are worthy of further discussion.

First, we noticed some selection bias in the study design. Types of bariatric surgery include Roux-en-Y gastric bypass, sleeve gastrectomy, gastric banding, and biliopancreatic diversion with duodenal switch. They present different surgical risks, benefits, and particularly weight loss, which could lead to confounding by indication.2 The surgical group only enrolled patients undergoing Roux-en-Y gastric bypass and sleeve gastrectomy from 2004 to 2017. The representativeness of weight loss surgery is limited as gastric banding accounted for a significant proportion of metabolic and bariatric procedures in the US prior to 2014.3 Consequently, the subgroup analysis with surgery approaches could be conducted to provide some further insights.

Second, according to the exclusion criteria, the participants in the study tended to undergo routine care at Cleveland Clinic Health System.1 Nevertheless, weight loss surgery could improve the underlying obesity-related comorbidities such as diabetes, dyslipidemia, and hypertension.2 This could in turn lower outpatient visits and consequently result in surveillance bias.

Third, we are worried that COVID-19 vaccination might be a potential confounder. In this study, COVID-19-related outcomes were detected between March 2020 and March 2021. However, we discovered that the US COVID-19 vaccination program started on December 14, 2020, and those who were susceptible to COVID-19 hospitalization and death were given priority for COVID-19 vaccines.4 Until March 1, 2021, the cumulative coverage of COVID-19 vaccination among adults in the US was approximately 20%.4 Therefore, owing to the high rate of COVID-19 vaccination, we suggest the receipt of COVID-19 vaccine be considered in this study.

In conclusion, we believe that more considerations about selection bias, case ascertainment, and residual confounders could enhance the accuracy and impact of the study.

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