Should patients become obese before transcatheter aortic valve implantation?

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Obesity is highly prevalent in economically advanced countries and incurs a substantial burden on health care. It has been reported to be associated with comorbidities such as hypertension, diabetes mellitus, and dyslipidaemia, as well as diseases such as cardiovascular and cerebrovascular disease [1]. Despite these associations, the so-called obesity paradox, a phenomenon indicating that obese patients actually have better survival, has been repeatedly reported in various conditions [2–7].

Tokarek et al. [8] have recently presented outcomes of transcatheter aortic valve implantation (TAVI) among 148 consecutive patients classified according to the body mass index (BMI) into normal-weight (18.5–24.9 kg/m²), overweight (25.0–29.9 kg/m²), and obese (≥ 30 kg/m²). After excluding one patient with a low BMI, the final analysis comprised 147 subjects. The proportion of obese patients was 25.2%, and in an adjusted model patients with normal BMI had higher all-cause mortality compared with the obese cohorts (hazard ratio 3.86). BMI was also associated with lower all-cause mortality (hazard ratio 0.91, per 1 kg/m² increase). While this work constitutes another piece of evidence on the existence of the obesity paradox in post-TAVI patients, we still do not have a clear idea of the mechanisms of this phenomenon. The present study adds important insights by assessing the frailty score using several scales in patients with different BMI values. Interestingly, although there was no statistical difference, most of the frailty indices were lower in the obese cohorts and the duration of the five-metre walk test was significantly shorter in obese patients (indicating lower frailty). Various frailty scales were not included in the multivariate analysis, but it would have been interesting to see how their inclusion would have affected the results, because frailty is one of the well-known predictors of mortality following TAVI [9].

Of note, there was no significant difference in the rate of myocardial infarction or cerebrovascular events, and these events were unlikely to be the cause of the obesity paradox in this study. Observing the Kaplan-Meier curve for all-cause mortality in the present study, it can be seen that the curve diverges rapidly at an early stage and stabilises later in the normal BMI cohort, whereas the event occurs more frequently after two years or so in the obese group, after an initially low mortality rate during follow-up. This finding may support one of the theories behind the obesity paradox discussed by the authors, i.e. that the metabolic reserve in obese cohorts may have a protective effect in acute morbidities and procedural stress.

In light of the previous studies relating to the obesity paradox post-TAVI, this study adds to the current literature, proving that BMI is a useful variable for further risk stratification in post-TAVI patients. Should nutritional assessment be part of a routine evaluation in TAVI patients regardless of BMI? Should patients try to gain weight prior to the procedure? While patients with low BMI gaining weight through nutritional referral and assessment prior to TAVI appears to be a plausible perioperative management, should patients with normal BMI try to gain weight and become obese prior to TAVI? Further studies are required to elucidate the mechanism of the obesity paradox.

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References


