Effect of body mass index on ischemic and bleeding events in patients presenting with acute coronary syndromes: insights from the START-ANTIPLATELET registry

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Background: The protective effect of obesity on mortality in acute coronary syndromes (ACS) patients remains debated. We aimed at evaluating the impact of obesity on ischemic and bleeding events as possible explanations to the obesity paradox in ACS patients.

Methods: For the purpose of this sub-study, patients enrolled in the START-ANTIPLATELET registry were stratified according to Body Mass Index (BMI) into three groups: normal, BMI $<$25kg/m^2; overweight, BMI: 25–29.9kg/m^2; obese, BMI $\geq$30kg/m^2. The primary endpoint was net adverse clinical endpoints (NACE), defined as a composite of all-cause death, myocardial infarction (MI), stroke, and major bleeding.

Results: Patients were classified as follows: 410 (33.9%) normal, 538 (44.5%) overweight, 261 (21.6%) obese. Compared to the normal weight group, obese and overweight patients had a higher prevalence of cardiovascular risk factors, but were younger, with a better left ventricular ejection fraction (LVEF) and lower PRECISE-DAPT score. At one-year follow-up NACE was more frequently observed in normal than in overweight and obese patients (15.1%,8.6%,and9.6%, respectively; p=0.004), driven by a significantly higher rate of all-cause death (6.3%,2.6%, and 3.8%, respectively; p=0.008), while no significant differences were noted in terms of MI, stroke, and major bleeding. When correcting for confounding variables, BMI loses its power in independently predicting outcomes, failing to confirm the obesity paradox in a real-world ACS population.

Conclusions: Our study conflicts the obesity paradox in real-world ACS population, and suggest that the reduced mortality rate may be explained by a lower bleeding risk in obese patients allowing a more aggressive medical treatment, and by a better LVEF translating into a higher survival rate.