

Section: SURGERY

Abstract: CIR-04

The impact of body mass index on short- and long-term mortality in cardiac valve surgery: A systematic review

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INTRODUCTION: Obesity poses a growing challenge in cardiac valve surgery. Although traditionally regarded as a risk factor, evidence suggests a paradoxical association between elevated body mass index (BMI) and lower short-term surgical mortality, known as the "Obesity Paradox." Its validity in isolated valvular procedures remains insufficiently investigated. **METHOD:** A systematic review was conducted following PRISMA 2020 guidelines, with a comprehensive search across CENTRAL, MEDLINE, PubMed, VHL, and SciELO databases (January 2016 to July 2025). Studies comparing mortality between overweight/obese patients (BMI ≥ 25 kg/m²) and normal-weight individuals undergoing valve surgery were included. Risk of bias was assessed using the Newcastle-Ottawa Scale, certainty of evidence was evaluated with the GRADE approach, and a narrative synthesis was performed following SWiM guidelines. **RESULTS:** Twenty-three studies comprising over 100,000 patients were included. Short-term mortality (≤ 30 days) was consistently lower among overweight and mildly obese patients, particularly in aortic valve procedures (risk reduction of 19–44%). In mitral surgery, findings were heterogeneous, with similar mortality but higher rates of acute kidney injury in obese patients. Long-term outcomes (> 5 years) showed attenuation or reversal of the paradox, with mortality rates converging, especially when metabolic comorbidities were present. **DISCUSSION:** The perioperative benefit is mediated by metabolic reserve and the cardioprotective endocrine profile of adipokines. Minimally invasive techniques have eliminated elevated BMI as a technical contraindication, reducing infection-related complications. Over time, chronic low-grade inflammation and composite cardiovascular risk reverse the paradox, particularly in severe obesity associated with diabetes and smoking. **CONCLUSION:** The Obesity Paradox in valvular surgery is a strictly time-dependent phenomenon. Elevated BMI should not contraindicate surgical intervention but requires rigorous long-term metabolic monitoring to preserve perioperative survival benefits.

KEYWORDS: Obesity; Mortality; Valve surgery.