

Obesity as a predictor of mortality after first-time aortic valve replacement.

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### **Objectives:**

Despite exhaustive analysis suggesting otherwise, many cardiac surgeons & anaesthetists persist in the belief that obesity is an independent predictor of risk in cardiac surgery. In aortic valve surgery there is a growing body of literature to suggest that, whilst low BMI may be associated with poor outcomes, high BMI is not: the so-called 'obesity paradox'. This single centre retrospective study examines our experience of the phenomenon.

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### **Methods**

Retrospective analysis of isolated first-time aortic valve replacement (AVR) in a prospectively collected database (2011-2015). Obese (BMI $\geq$ 30) & non-obese (BMI<30) patients were compared for: demographics, pre-, intra- & post-operative variables. Statistical methods included descriptive tests and Chi-square test to detect significance different variables between groups. Variables were fed into a logistic regression model to determine the impact of obesity on mortality and morbidity.

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### **Results**

There were 467 patients. 284 were male (61%), 165 (35.3%) were obese. Mean logistic EuroSCORE was 6.6 $\pm$ 6 in the non-obese group & 6.6 $\pm$ 5 in the obese group ( $\mu\pm$ SD). Diabetes mellitus, hypertension, renal failure, COPD, and carotid artery disease were more common in obese patients. Renal failure and multi-organ failure were more common in the obese and there were more deaths (3.1% vs 0%,  $p<0.005$ ). Logistic regression confirmed obesity, female gender, and renal dialysis as predictors of death.

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### **Conclusions**

The number of obese patients undergoing AVR is increasing over time. Pre-operative BMI $\geq$ 30 is associated with an increased risk of death in patients undergoing isolated first-time AVR in our institution. This increased risk may be independent of other associated co-morbidities and appears to confound the so-called 'obesity paradox' reported by other authors. High BMI should be taken into account when considering alternative strategies in the surgical management of aortic valve disease.

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