The impact of comorbidities on outcomes of concomitant mitral valve intervention with ascending aortic aneurysm surgery

Objectives: The Charlson Comorbidity Index (CCI) is widely utilized for risk stratification for non-cardiac surgical patients. CCI scores have not been broadly validated in cardiac surgery patients. We have previously shown that addition of a mitral procedure to aortic procedures does not increase operative mortality in experienced hands. However, predictors of early and late outcomes associated with concomitant mitral valve intervention with aortic aneurysm surgery are lacking. We aim to assess CCI as a predictor of early and late outcomes in this cohort.

Methods: Patients undergoing concomitant mitral valve intervention and aneurysm surgery between 1997 and 2022 were reviewed. Age-adjusted CCI scores were calculated based on clinical status at the time of index operation. Primary endpoint was all cause mortality. Secondary endpoints were a composite of major adverse events (MAE), including operative mortality, dialysis, myocardial infarction and stroke, and incidence of individual major complications. Chi-square test, Logistic and Cox regression analysis, and Kaplan-Meier estimates were used. Maximally selected rank statistics (MSRS) were used to identify the best cutoff of CCI to predict late mortality.

Results: Out of 3853 ascending aneurysm repairs, 186 (4.8%) patients (median age 65 [interquartile range (IQR): 54-76] and 69% males) had concomitant mitral valve intervention. Median CCI was 4 [IQR: 3-6]. MSRS identified a cutoff for CCI of 5, which had the highest significant survival difference. Perioperative MAE was higher in CCI>5 (11.0% vs 2.1%, P=0.017), and postoperative need for tracheostomy and CVA had a trend to be higher in CCI>5 (P=0.055). On multivariable Cox regression analysis, higher CCI (HR=1.61 [95%CI 1.24;2.10], P=<0.001) was associated with late mortality and recent era (Year 2010 and after (HR= 0.18 [95%CI 0.03;0.95], P=0.0431)) was protective. Logistic regression revealed that higher CCI, as a continuous variable, was associated with higher odds of MAE, postoperative dialysis and need for tracheostomy (Table 1). Five- and ten-year overall survival were 95.9% and 67.1% vs 59.7% and 19.9%, respectively, in CCI?5 vs CCI>5 (P<0.001).

Conclusions: CCI can be a helpful tool in predicting outcomes of patients undergoing concomitant mitral valve intervention with ascending aortic surgery. A high CCI score is associated with worse operative outcomes and decreased long-term survival.

Mohamed Rahouma (1), Sheriff Khairallah (1), Christopher Lau (1), Talal Al Zghari (1), Mario Gaudino (1), Leonard Girardi (1), Stephanie Mick (1), (1) Weill Cornell Medicine/ New York Presbyterian Hospital, New York, NY

Additional Resources

- https://files.aievolution.com/prd/aat2101/abstracts/abs_5991/Table1.docx