

Anirudh Palicherla, MD

Creighton

Omaha

anirudh.256@gmail.com

(531) 239-4556

Original research (includes database studies and QI projects)

Title: Trends and Outcomes of Concomitant Tricuspid Valve Surgery with Mitral Valve Surgery: A National Readmission Database study

Description:

Background

While early reports suggested tricuspid regurgitation (TR) improves with mitral valve surgery (MVS), lately, it has become more apparent that late TR in MV disease carries significant morbidity and mortality. We aimed to assess the national trends in outcomes and readmission rates related to concomitant TV surgery (TVS) with MVS.

Methods

Study data were abstracted from 2016 through 2020 NRD. Index hospitalizations of patients undergoing MVS and concomitant TVS were indicated by ICD-10 procedure codes. Continuous variables were presented as median and interquartile range and compared using regression. Categorical covariates were presented as percent and compared using Rao-Scott chi-square test. Differences in the odds of all outcomes were assessed via logistic regression.

Results

A total of 63,047 weighted hospitalizations for MVS met inclusion criteria. Compared to MVS hospitalizations without TVS, MVS+TVS hospitalizations had 60% greater unadjusted odds of in-hospital mortality, 70% greater odds of a complication, 26% greater odds of all-cause and 30-day readmission, and 30% greater odds of 90-day readmission. For specific complications, MVS+TVS hospitalizations had greater unadjusted odds of cardiogenic shock, pacemaker implantation, and acute kidney injury requiring dialysis. However, there was no significant difference in the odds of stroke/TIA or the requirement of mechanical support between the two cohorts [Table 1].

Conclusions

Mitral valve surgery is associated with worse outcomes and higher mortality with concomitant tricuspid valve surgery. It is, therefore, important to emphasize the importance of discussing the increased risk linked to conducting additional tricuspid valve operations concurrently with mitral repair or replacement.

Table 1. Outcomes of Mitral Valve surgery [MVS] with and without concomitant Tricuspid valve "

Trends and Outcomes of Concomitant Tricuspid Valve Surgery with Mitral Valve Surgery: A National Readmission Database study

Background

While early reports suggested tricuspid regurgitation (TR) improves with mitral valve surgery (MVS), lately, it has become more apparent that late TR in MV disease carries significant morbidity and mortality. We aimed to assess the national trends in outcomes and readmission rates related to concomitant TV surgery (TVS) with MVS.

Methods

Study data were abstracted from 2016 through 2020 NRD. Index hospitalizations of patients undergoing MVS and concomitant TVS were indicated by ICD-10 procedure codes. Continuous variables were presented as median and interquartile range and compared using regression. Categorical covariates were presented as percent and compared using Rao-Scott chi-square test. Differences in the odds of all outcomes were assessed via logistic regression.

Results

A total of 63,047 weighted hospitalizations for MVS met inclusion criteria. Compared to MVS hospitalizations without TVS, MVS+TVS hospitalizations had 60% greater unadjusted odds of in-hospital mortality, 70% greater odds of a complication, 26% greater odds of all-cause and 30-day readmission, and 30% greater odds of 90-day readmission. For specific complications, MVS+TVS hospitalizations had greater unadjusted odds of cardiogenic shock, pacemaker implantation, and acute kidney injury requiring dialysis. However, there was no significant difference in the odds of stroke/TIA or the requirement of mechanical support between the two cohorts [Table 1].

Conclusions

Mitral valve surgery is associated with worse outcomes and higher mortality with concomitant tricuspid valve surgery. It is, therefore, important to emphasize the importance of discussing the increased risk linked to conducting additional tricuspid valve operations concurrently with mitral repair or replacement.

Outcomes of MV procedures				
	Unadjusted			
	TV procedure: No	TV procedure: Yes	Ratio (95% CI)	p
In-hospital Mortality (%)	5.18	8.03	1.60 (1.30 - 2.96)	< 0.001
LOS, days	10.23	13.10	1.28 (1.22 - 1.34)	< 0.001
Complication (%)	30.01	42.09	1.70 (1.51 - 1.90)	< 0.001
Cardiogenic Shock (%)	16.04	21.09	1.40 (1.21 - 1.62)	< 0.001
Stroke (%)	5.38	5.68	1.06 (0.82 - 1.36)	0.656
Mechanical Circulatory Support (%)	7.04	6.85	0.97 (0.78 - 1.21)	0.794
Pacemaker (%)	7.89	15.55	2.15 (1.84 - 2.51)	< 0.001
AKI + Dialysis (%)	2.68	3.80	1.43 (1.05 - 1.95)	0.021
30-day All-cause (%)	17.31	20.81	1.26 (1.07 - 1.47)	0.005
90-day All-cause (%)	25.80	31.07	1.30 (1.11 - 1.52)	0.001

Table 1. Outcomes of Mitral Valve surgery [MVS] with and without concomitant Tricuspid valve surgery [TVS].