

Safety And Outcomes Of Re-operative Robotic Tricuspid Valve Surgery

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BACKGROUND

- Isolated redo tricuspid valve replacement or repair (TVR/r) carries a high operative risk for morbidity and mortality
- Robotic assisted re-operative TVR/r is an uncommon operation and previous studies are limited
- We report the early outcomes for a large series of isolated redo robotic tricuspid valve surgery

METHODS

- The institutional STS Adult Cardiac Surgery Database was used to identify patients with previous cardiac procedure(s) undergoing isolated robotic TVR/r from 09/2017 to 10/2022
- Twenty-four consecutive patients underwent robotic isolated redo TVR/r for primary (n-9, 38%) or secondary (n-15, 62%) tricuspid valve pathology
- For the majority this was a second reoperation (92%), while for 8% of patients was the third reoperation (Table 2)
- Mean patient age was 71.8 ± 12.6; 62.5% of patients were women
- Most patients had an LVEF>45% (58.3%) versus 33.3% with an LVEF 35-45% and 8.3% <35%
- Primary outcome was 30-day mortality
- Secondary outcomes consisted of 30-day readmission rate, reintervention rate, length of stay, need for permanent pacemaker and other adverse events
- We used descriptive statistics, and we examined the different outcomes on primary versus secondary etiology using bivariate analysis

RESULTS

Post-operative Outcomes	Overall (n=24)	Primary (n=9)	Secondary (n=15)	p-value
30-day mortality	2 (8.3%)	0 (0%)	2 (13.3%)	0.1515
PPM insertion	0 (0%)	0 (0%)	0 (0%)	-
Re-intervention	2 (8.3%) (both bleeding)	0 (0%)	2 (13.3%)	0.1515
Respiratory failure	3 (12.5%)	1 (11.1%)	2 (13.3%)	0.8734
Renal failure	2 (8.3%)	1 (11.1%)	1 (6.7%)	0.7029
Length of stay (day)	10.4 ± 7.0	8.7 ± 5.9	11.4 ± 7.6	0.3661
30-day readmission	1 (4.5%)	0 (0%)	1 (7.7%)	0.3944

Previous Cardiac Procedure	Robotic TV Procedure	Frequency (n=24)
Redo AVR, s/p AVR/MVR	3rd Cardiac Re-operation	1 (4.1%)
TVR and myxoma removal, s/p MAZE	3rd Cardiac Re-operation	1 (4.1%)
AVR/MVR	2nd Cardiac Re-operation	2 (8.3%)
CABG	2nd Cardiac Re-operation	6 (25.0%)
MVR	2nd Cardiac Re-operation	6 (25.0%)
MVR/CABG	2nd Cardiac Re-operation	3 (12.5%)
MVR/TVR/CABG	2nd Cardiac Re-operation	1 (4.1%)
Sinus Venosus ASD repair	2nd Cardiac Re-operation	1 (4.1%)
TV Replacement	2nd Cardiac Re-operation	1 (4.1%)
TV Repair	2nd Cardiac Re-operation	1 (4.1%)
TV valvotomy for tumor resection	2nd Cardiac Re-operation	1 (4.1%)

RESULTS

- Thirty-day mortality was 8.3 % for entire cohort (2 patients with secondary disease died from respiratory complications)
- The operation was performed with beating heart for the entire cohort and the average cardiopulmonary bypass time was 60.1 ± 18.8 minutes
- CPB time: 74.2 min for the sub-group with primary disease versus 51.6 min for those with secondary disease
- Twenty patients underwent TV repair versus four TV replacement (porcine bio-prosthesis was used on all of them)
- There was no conversion to open procedure for the entire series
- There was no incidence of post-operative permanent pacemaker placement
- The rate of reintervention was 8.3 % (bleeding)
- Major complications were respiratory failure (need for prolonged ventilation - 12.5%) and renal failure (8.3%)
- The readmission rate was low (4.5%)

CONCLUSION

- In this series isolated robotic reoperative tricuspid valve surgery was safe with good early post-operative outcomes
- Pre-operative respiratory risk stratification is important for this patient population given the severity of pulmonary complications
- To our knowledge, this is the largest series reported on robotic assisted redo tricuspid valve surgery