

## **Severe Isolated Tricuspid Regurgitation: Outcomes Compared to Other Tricuspid Regurgitation Etiologies and Predictors of Adverse Events**

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Brief Title: Isolated tricuspid regurgitation outcomes

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## **ABSTRACT**

**Background:** Isolated tricuspid regurgitation (TR) is associated with poor prognosis, but additional work to improve our understanding of this entity is necessary to improve outcomes.

In a large cohort of patients with severe TR, we sought to: 1) determine the prevalence of isolated TR; 2) compare the rate and risk of adverse events of different TR etiologies vs. isolated TR; and 3) determine clinical and echocardiographic predictors of adverse events in patients with severe isolated TR.

**Methods:** Consecutive patients with severe TR on echocardiography from 2002-2016 (n=2017, median age 75 (IQR 61,83) years, 51% female) were studied. TR etiologies were adjudicated into 9 groups. Demographics, comorbidities and long-term outcomes were extracted from provincial administrative databases. Primary endpoint was all cause mortality.

**Results:** Primary TR occurred in 14%: 183 (9%) isolated, 140 (7%) congenital/myxomatous/infected endocarditis and 140 (7%) lead-induced. Secondary TR occurred in 77%: 408 (20%) pulmonary hypertension, 393 (19%) left-sided valve disease, 531 (26%) left ventricular dysfunction and 222 (11%) both left-sided valve disease and left ventricular dysfunction. There were 1277 (63%) deaths over a median follow up of 8.0 (IQR 5.1,10.6) years. In age-adjusted analysis, isolated TR patients had better survival than TR groups with pulmonary hypertension [HR 1.93; 95%CI (1.54-2.42)], left ventricular dysfunction [HR1.65; 95%CI (1.33-2.06)] and infective endocarditis [HR 3.13; 95%CI (1.69-5.83)] and similar survival to the remaining groups. Multivariate predictors of mortality in isolated TR included age, chronic kidney disease and right atrial volume. There were no sex-based differences in outcome in the isolated TR group.

**Conclusion:** Isolated TR represented 9% of a large cohort with severe TR and survival was similar to most other primary TR etiologies. Predictors of death represent chronicity of isolated TR, suggesting that the impact of early intervention to improve outcomes should be the focus of future studies.

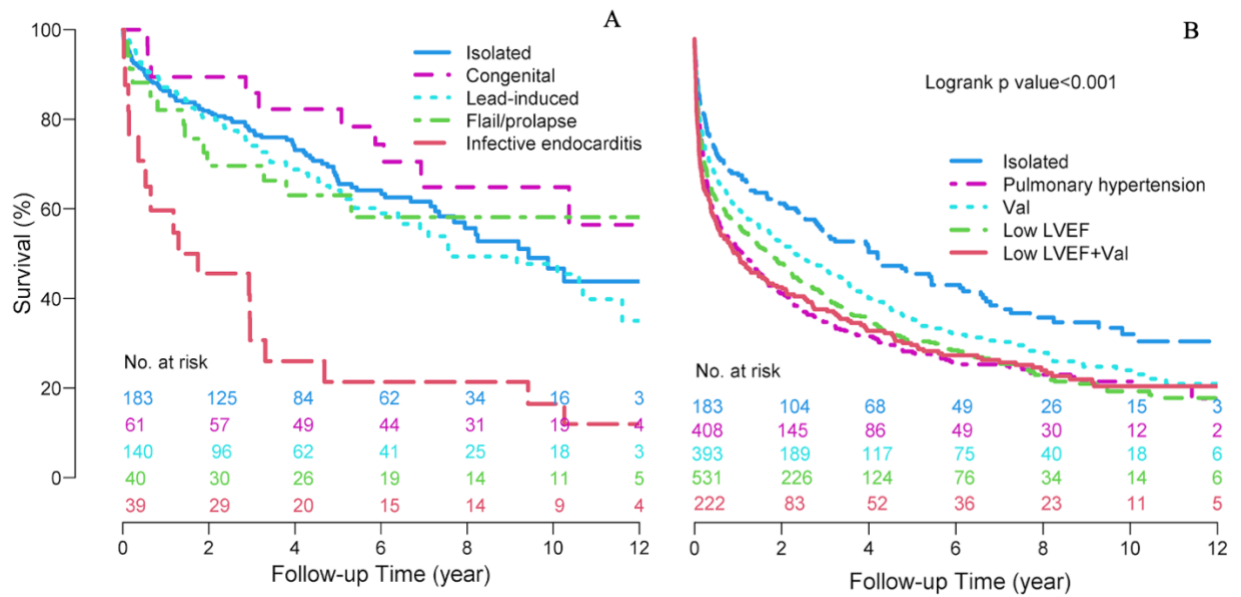


Figure 1: Survival of isolated TR compared to primary TR and secondary TR causes.

Kaplan-Meier survival curves for all-cause mortality during follow-up for (A) isolated TR vs primary TR etiologies, (B) isolated TR vs secondary TR etiologies (Val = Valves, LVEF = Left ventricular ejection fraction)