Clinical Predictors of Mortality and Heart Failure Hospitalization in Patients with Severe Tricuspid Regurgitation

Kris Kumar DO MSc1, Timothy Byrne DO2, Timothy F. Simpson MD PharmD2, Ashraf Samhan BS3, Raj Shah MD2, Jorge Rodriguez MD2, Loren Wagner1, Miguel Sotelo1, Chris Rogers1, Scott M. Chadderdon MD, Howard K. Song MD PhD1, Harsh Golwala MD1, Firas Zahr MD1

1Division of Cardiology, Knight Cardiovascular Institute, Oregon Health and Science University, Portland, OR
2Abrazo Health, Phoenix, AZ
3Mpirik, Milwaukee, WI

BACKGROUND

There is an incomplete understanding of the predictors of morbidity and mortality in patients with severe tricuspid regurgitation (TR).

This multicenter study sought to identify key risk factors for all-cause mortality and heart failure (HF) hospitalization among patients with severe TR.

METHODS

Patients with severe TR were identified from two centers, Oregon Health and Science University and Abrazo Health, from 1/1/16 to 12/31/18 using Mpirik machine learning software.

Clinical data was collected at the closest time point to the index echocardiogram. Patients with any other severe valvular diseases or valvular intervention were excluded. The remaining cohort was followed for a primary endpoint of all-cause mortality.

Multivariate regression was utilized to identify variables independently associated with all-cause mortality or HF hospitalization.

RESULTS

435 patients with severe TR were followed for a median of 2.77 years. The average age of the population was 66.9 ± 18.5 years and 58% were female (Table 1).

The population had a high burden of comorbid disease including hypertension (64%), atrial fibrillation (52%), and a history of HF (62%) (Table 1).

Independent predictors of all-cause mortality included history of solid tumor (OR 6.6, 95% CI 2.1-19.1, p=0.001), history of peripheral artery disease (PAD) (OR 3.5 95% CI 1.2-9.4, p=0.013) and elevated INR in the absence of anticoagulation (OR 1.9, 95% CI 1.2-3.2, p=0.008) while predictors of HF hospitalization included history of diabetes mellitus (DM) (OR 1.4, 95% CI 1.1-4.0, p=0.014) and history of reduced LVEF (OR 5.7, 95% CI 2.9-11.7, p=0.0001).