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

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DISCLOSURES

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).
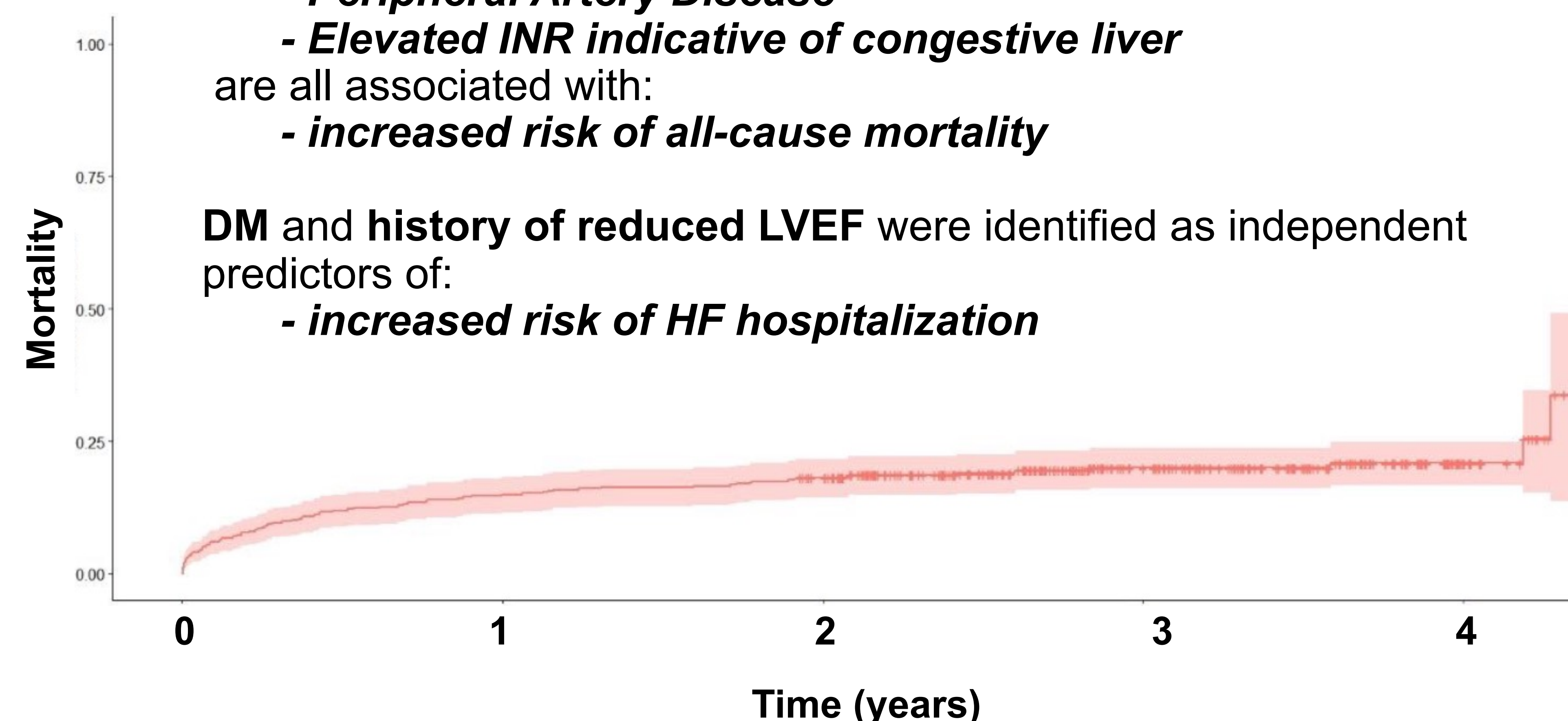
CONCLUSIONS

In this multicenter retrospective analysis of patients with severe TR,
- **History of solid tumor**
- **Peripheral Artery Disease**
- **Elevated INR indicative of congestive liver**
are all associated with:
- **increased risk of all-cause mortality**

DM and **history of reduced LVEF** were identified as independent predictors of:
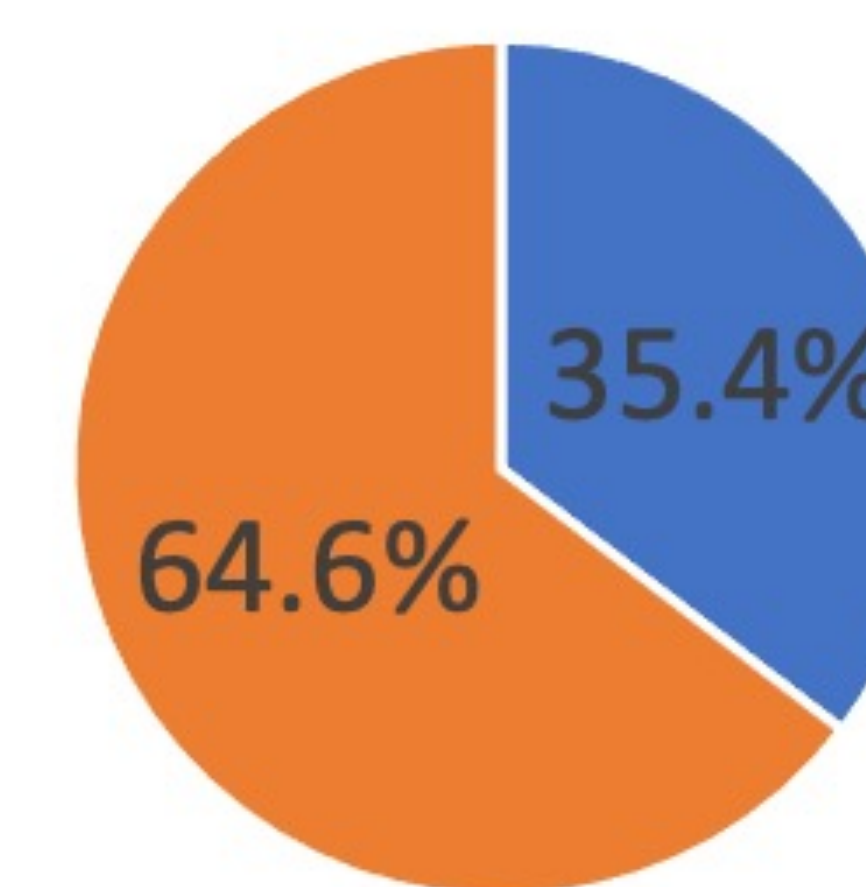- **increased risk of HF hospitalization**

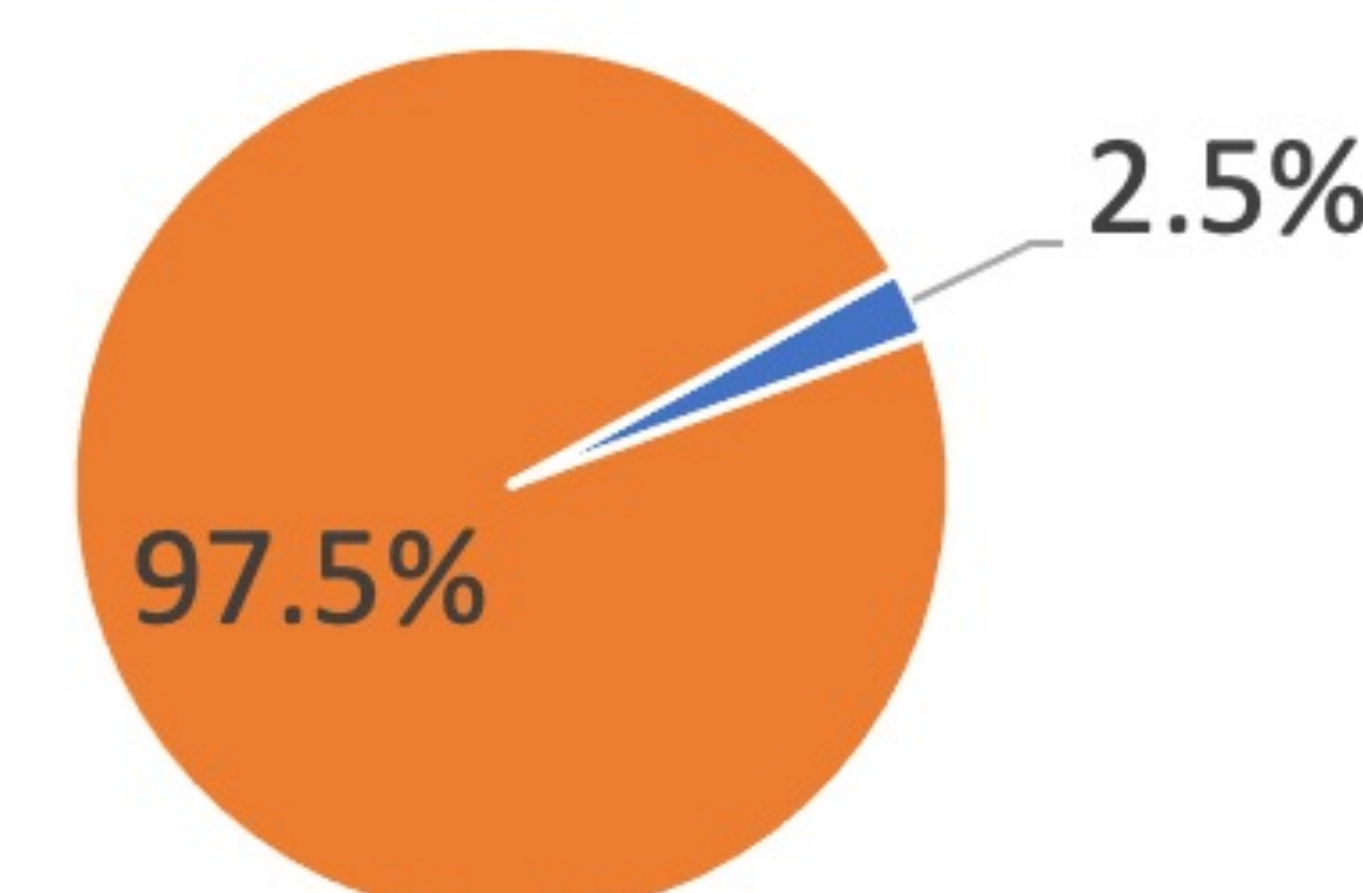All-Cause Mortality During a Median 2.77 Year Follow-Up Period

20.5%
79.5%

All-Cause Mortality During a Median 2.77 Year Follow-Up Period

35.4%
64.6%
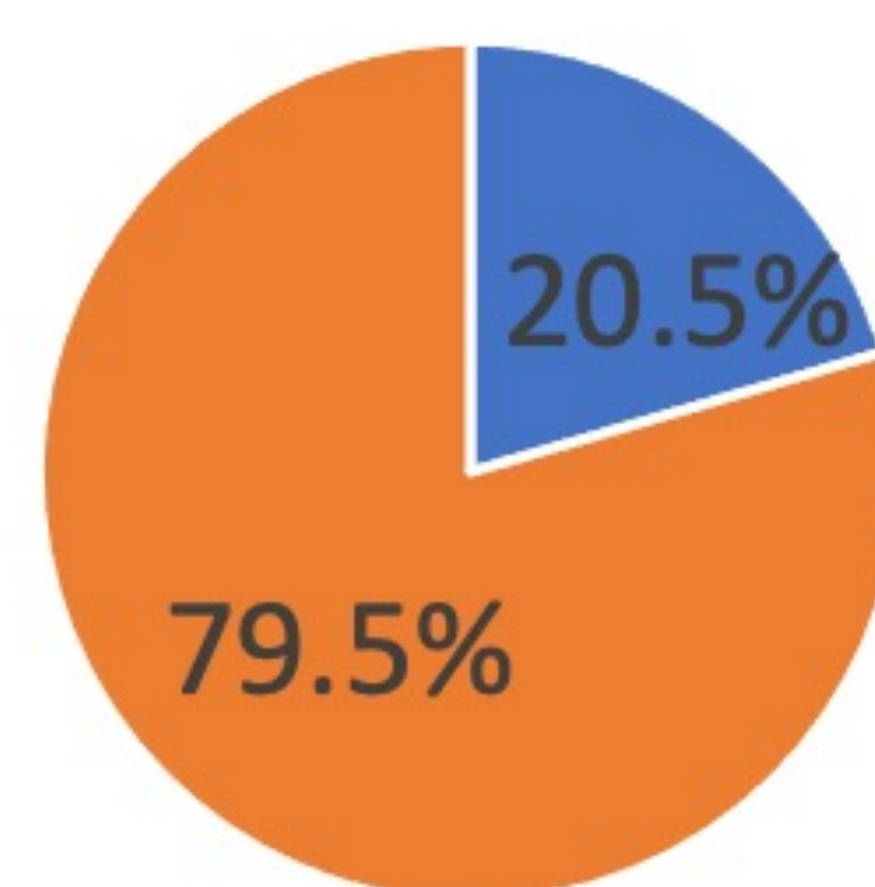
■ All-Cause Mortality ■ Survival   ■ HF Hospitalization ■ No HF Hospitalization

Isolated Tricuspid Valve Intervention During a Median 2.77 Year Follow-Up Period

2.5%
97.5%

■ Isolated TV Intervention ■ No TV Intervention

RESULTS

Mean LVEF was 43.8 ± 18.5%, with an estimated RVSP of 58.4 ± 23.2 mmHg. All-cause mortality was identified in 20.5% of the population. 35.4% of patients were hospitalized for HF. Isolated tricuspid valve intervention was performed in 2.5% of patients.

Table 1: Baseline Characteristics of Patients with Severe Tricuspid Regurgitation

Baseline Characteristic	Total Cohort (n=435)
Demographics	
Age, years	66.9 ± 18.5
Female, n (%)	251 (57.7%)
Comorbid Conditions	
Atrial Fibrillation/Flutter, n (%)	229 (52.6%)
Coronary Artery Disease, n (%)	158 (36.3%)
History of CABG, n (%)	51 (11.7%)
History of PCI, n (%)	45 (10.3%)
Diabetes Mellitus, n (%)	126 (28.9%)
Chronic Kidney Disease, n (%)	94 (21.6%)
Dialysis, n (%)	34 (7.8%)
Hypertension, n (%)	276 (63.4%)
Heart Failure, n (%)	268 (61.6%)
Peripheral Artery Disease, n (%)	45 (10.3%)
Former or Current Smoker, n (%)	137 (31.5%)
History of Solid Tumor, n (%)	39 (8.9%)
History of Stroke or TIA, n (%)	79 (18.2%)
COPD, n (%)	81 (18.6%)
Obstructive Sleep Apnea, n (%)	43 (9.8%)
Interstitial Lung Disease, n (%)	9 (2.0%)
Connective Tissue Disease, n (%)	6 (1.3%)
Liver Disease, n (%)	63 (14.5%)
Laboratory Data	
Hemoglobin, g/dL	11.3 ± 2.5
Creatinine, mg/dL	1.58 ± 1.58
Medical Therapy	
ACEi/ARB, n (%)	105 (24.1%)
Beta Blocker, n (%)	173 (39.7%)
Calcium Channel Blocker, n (%)	43 (9.8%)
Loop diuretic, n (%)	176 (40.5%)
Thiazide Diuretic, n (%)	45 (10.3%)
Aldosterone Antagonist, n (%)	49 (0.11%)
Anticoagulation, n (%)	129 (29.6%)
Antiarrhythmic, n (%)	65 (14.9%)
Statin, n (%)	133 (30.5%)

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 on 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).