Prognostic Value of E/E= Ratio in Patients with Unoperated Severe Aortic Stenosis

Biner, Simon\(^1\); Rafique, Asim\(^2\); Goykhman, Pavel\(^2\); Siegel, Robert\(^2\)

\(^1\)Tel Aviv Sourasky Medical Center, Cedars Sinai Medical Center, Los Angeles, USA, Cardiology; \(^2\)Cedars Sinai Medical Center, Los Angeles, USA

Objectives: To evaluate the value of clinical and echo-Doppler parameters for the prognosis of severe unoperated aortic stenosis (AS).

Background: Approximately one third of severe, symptomatic AS patients are denied surgery. Risk stratification of AS is important to determine eligibility for transcatheter aortic valve replacement, a new treatment option for AS patients deemed suboptimal for surgical aortic valve replacement.

Methods: We retrospectively compared clinical and echo-Doppler parameters between survivors and nonsurvivors in 125 patients with unoperated severe AS.

Results: The 1-year survival rate was 62.4%. In univariate analysis, survivors compared to nonsurvivors were younger (80.0±10.9 years vs. 84.9±11.1 years, p=0.02), had greater left ventricular ejection fraction (LVEF) (55±15% vs. 50±16%, p=0.042), a higher left ventricular stroke volume (63±19 ml vs. 56±13 ml, p=0.015), a lower E/E' ratio (12.2±5.7 vs. 16.9±7.4, p<0.001), and lower prevalence of E/E'>15% (20% vs. 55%, p<0.001). Symptomatic status was insignificantly different between survivors and nonsurvivors. In patients with an LVEF ≤50%, the subgroup with E/E'=15 and with E/E'>15 had a 73.8% and 47.8% 1-year survival rate, respectively (p=0.027). In the patients with an LVEF<50%, the patients with E/E'<15 and those with E/E'>15 demonstrated a 70.6% and 22.3% 1-year survival rate, respectively (p=0.003). In multivariate analysis, the only significant predictors of was E/E'>15. Adjusted mortality risk 2.34 (range 1.27 to 4.33, p=0.0072).

Conclusions: LVEF was a significant predictor of survival only in the univariate analysis. B-type natriuretic peptide alone was not a predictor of prognosis in the study population. The E/E' ratio is the single most predictive clinical and echo-Doppler parameter in the assessment of prognosis in unoperated severe AS.