Valvular Heart Disease

THE IMPACT OF SIX-MINUTE WALK TEST PERFORMANCE ON OUTCOMES AFTER TRANSCATHETER AORTIC VALVE REPLACEMENT: INSIGHTS FROM THE PARTNER TRIAL

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Background: Functional capacity and endurance as estimated by six minute walk test distance (6MWD) has been shown to predict outcomes in selected cohorts with cardiovascular disease. We evaluated the impact of 6MWD on clinical and functional outcomes after transcatheter aortic valve replacement (TAVR) among participants in the PARTNER trial.

Methods: The study population consisted of 514 TAVR pts from the PARTNER trial, who were stratified into 3 groups according to baseline 6MWD: unable to walk (UW), slow walkers (SW) in whom 6MWD was below the median (129 m), and fast walkers (FW) with 6MWD > 129 m. The association of 6MWD group with procedural (30-day), clinical, and functional outcomes was evaluated using univariable and multivariable analyses.

Results: Among 514 TAVR pts, 216 (42%) were UW, 156 (30%) were SW, and 142 (28%) were FW. At baseline, 6MWD was 242 ± 95m in the FW and 74 ± 36m in SW. Female gender, chronic lung disease and STS score were each associated with inferior 6MWD ($p<0.001$ for all). Procedural (30-day) outcomes including death, cardiovascular death, stroke, renal failure, major bleeding, and major vascular complications did not differ between 6MWD groups. At 2 years, all cause mortality was 44% among UW, vs. 30% in SW and FW ($p=0.005$), driven by differences in non-cardiac death ($p=0.004$), but not cardiac death ($p=0.54$). In a fully adjusted multivariable model, UW (HR 1.91, 95% CI 1.01-3.61, $p=0.046$) was associated with increased mortality compared with FW but SW was not (HR 1.24, 95% CI 0.62-2.25, $p=0.54$). Follow-up 6MWD at 1, 6, and 12 mos improved by 3m, 17m, 5m in FW ($p \geq 0.2$ compared to baseline for all). In contrast, at 1, 6, and 12 mos, 6MWD in SW improved by 94m, 133m, 122m ($p<0.0001$ compared to baseline for all) and in UW by 140m, 185m, and 169m.

Conclusions: Among high-risk older adults undergoing TAVR, baseline 6MWD does not predict procedural outcomes, but does predict long-term mortality. On the other hand, patients with poor functional status at baseline experience the greatest improvement in 6MWD. Further work is required to identify those with poor functional status who stand to benefit the most from TAVR.