

**TRANSFEMORAL VERSUS TRANSAPICAL TRANSCATHETER AORTIC VALVE REPLACEMENT: AN ANALYSIS OF 2013 NATIONAL READMISSION AND INPATIENT SAMPLE DATABASES**

Poster Contributions

Poster Hall, Hall C

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Session Title: Interventional Cardiology: TAVR 3

Abstract Category: 17. Interventional Cardiology: Aortic Valve Disease

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Background: Transcatheter aortic valve replacement (TAVR) was approved by the FDA in 2011 for management of severe aortic stenosis in patients at high risk for conventional surgical replacement. While both transfemoral (TF) and transapical (TA) techniques for access have been validated in clinical trials and adopted, less is known about disparities in access, costs, mortality, and readmissions in clinical practice.

Methods: We retrospectively analyzed patients who underwent transcatheter aortic valve replacement (ICD 9: 35.05, 35.06) in the 2013 National Readmission Database (NRD) and the Nationwide Inpatient Sample (NIS) Database. The NRD and NIS are all-payer inpatient databases of the United States with discharge data from 1,045 hospitals maintained by the Healthcare Cost and Utilization Project (HCUP). Mortality, readmission, and cost were evaluated using hierarchical linear models controlling for gender, age, insurance, and comorbidity measured by Charlson Index.

Results: 12,833 patients underwent TAVR from Jan. 2013 to Nov. 2013 in the United States for whom there is readmission data. 4042 (31.5%) received a TA approach while 8790 (68.5%) received a TF approach. TA patients were more likely female (53.9% vs. 47.3%, $P < 0.001$), more likely from ZIP codes with median income less than national median (49% vs 43%, $P < 0.002$), and had higher Charlson index (CI: 3.01 vs 2.78, $P < 0.02$). Even adjusted for comorbidities, the transapical approach was associated with higher mortality at discharge (6.1% vs. 4.1% OR: 1.54, $P < 0.005$), higher cost (\$65,030 vs. \$54,918, IRR:1.17, $P < 0.001$), and longer stays (11.0 vs. 8.4 days, IRR: 1.26, $P < 0.001$). All-cause readmission was significantly higher in TA patients within 30 days (21.6% vs. 16.5%, OR: 1.39 $P < 0.001$).

Conclusions: TAVR has grown significantly since FDA approval. Of the two most popular approaches, even after adjustment for comorbidities via the Charlson Index, TA is 17% more expensive, with 36% longer stays, 39% higher 30 day readmission rates, and over 50% worse mortality in the United States. Further investigation is warranted into why this is the case. Until then, if technically feasible, a TF approach should be strongly considered.