Trans Apical Transcatheter Aortic Valve Replacement is Associated with Higher Mortality Rates Compared with Trans-Femoral

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Background: Trans-apical (TA) access is an alternative to the more common trans-femoral (TF) access for Transcatheter Aortic Valve Replacement (TAVR). The impact of the access site on outcome is not clearly established.

Methods: All patients undergoing TAVR (n=446) by accessing through either TA (n=108; 24.2%) or TF (n=338; 75.8%) were included for the comparison of baseline characteristics, procedural data and outcome.

Results: TA patients were older (84.90±5.22 vs. 83.05±8.04 years; p<0.05), had higher incidence of peripheral vascular disease (57.3% vs. 31.6%; p<0.001) and higher Society of Thoracic Surgeons Score (11.13±4.52 vs. 9.50±4.47; p=0.002). No differences were noted in the stroke rate (TA-4.7% vs. 6.2%; p=0.55). TF access was associated with higher rates of major vascular complications (10.4% vs.3.7%; p=0.03) but the rate of life threatening bleeding and post-procedural acute kidney injury were higher in the TA group (14.0% vs. 5.0%; p=0.002 & 3.1% vs.0.3%; p=0.04, respectively). These disparities translated into longer hospital stay (TA-11.81±9.97 vs. TF-8.54±6.11 days; p=0.002), higher rates of 30-days and 1 year mortality rates in the TA patients (18.5% vs.5.6%; p<0.001, 30.6% vs. 18.9%; p=0.01). A landmark analysis (figure) demonstrated that beyond 30 days, no difference were noted in the mortality (log rank for 30d<0.001; for 1 year p=0.93).

Conclusion: TA is an alternative for TF-TAVR and was reserved for patients with higher rate of co-morbidities and contraindicated to TF. TA access was further associated with higher rates of post-procedural morbidity and mortality mainly in the first month after the procedure. The further development of smaller caliber sheaths will hopefully mitigate the use of TA or other alternative access sites.