

INFECTIVE ENDOCARDITIS FOLLOWING TRANSCATHETER AORTIC VALVE REPLACEMENT

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An Original Research

Background—There is an increasing role of transcatheter aortic valve implantation (TAVI) in patients with aortic stenosis. One of the most serious complications is post TAVI prosthetic valve endocarditis (PVE). The incidence of post TAVI-PVE ranges from 0.5 to 3.1%. In one large retrospective study, the in-hospital mortality rate following TAVI-PVE was 36% and the two-year mortality rate was 67%. Data on PVE is limited and there is significant variation in results. The objective of this study was to determine the incidence, clinical characteristics and outcomes of infective endocarditis after TAVI and to determine if the perioperative antibiotic regimen should be adjusted in a large tertiary care center.

Methods and Results— This was an observational single-center study of 994 patients treated with a transcatheter implanted aortic valve prosthesis between June 2013 and September 2018. Cases of endocarditis were retrospectively identified from electronic health records. Eighteen patients (1.8%) developed TAVI-PVE and were admitted to the hospital for further management. TAVI-PVE was most frequent in the first year after implantation (67%). All patients were managed non-surgically and the mortality was high at 44% despite targeted antibiotic treatment. The most common organism identified was *Enterococcus faecalis* (28%) followed by *Streptococcus viridans* (17%) and *Staphylococcus aureus* (17%). Cefazolin was the most commonly used antibiotic peri-operatively either alone (28%) or in combination with vancomycin (28%). The development of TAVI-PVE was more common in patients of younger age (77 years vs 81 years, $P=0.016$) and those with higher Society of Thoracic Surgeons (STS) risk score (14.88 vs 10.78, $P=0.028$). In contrast, factors that were not associated with increased endocarditis risk included paravalvular leak and type of valve inserted (self-expandable or balloon-expandable). The most common identifiable causes of infection were recent history of cellulitis, dental work and endoscopic procedures.

Conclusions—The incidence of post TAVI-PVE was 1.8% in our study and the risk increased with higher STS risk score and younger age. Hence, this group of patients would benefit from vigilant preventive measures peri-operatively. As *Enterococci* were identified as the most common organism associated with post-TAVI infective endocarditis, this should be taken into consideration when selecting antibiotics for prophylaxis before TAVR and when selecting the empiric antibiotic regimen while awaiting blood culture and sensitivity results. The traditional use of cephalosporins should be reconsidered as *Enterococci* are intrinsically resistant to all cephalosporins. This information may assist clinicians in identifying patients at higher risk for endocarditis and aid in implementing appropriate preventive measures to potentially avoid this fatal complication.