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Commentary: Bicuspid aortic valves and infective endocarditis: A real problem without clear solutions

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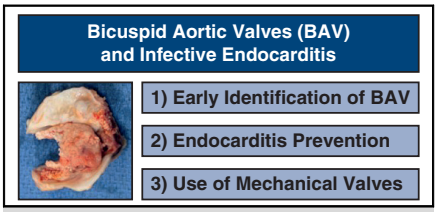

Bicuspid aortic valve and infective endocarditis: management strategy.

CENTRAL MESSAGE

Endocarditis prevention and use of mechanical valves that assures the lowest reoperation rate are essential aspects in the management of patients with bicuspid aortic valves.

Although aortic dissection is the most recognized life-threatening complication associated with bicuspid aortic valve (BAV), it is not the most common. Infective endocarditis (IE) in BAV is at least 3 times more common than aortic dissection (10 cases vs 3 cases per 10,000 patients/year) and has an incidence that is 17 times greater than in the general population often requiring surgical treatment.[1-3]

Le and colleagues[4] present a single-center retrospective study comparing baseline characteristics and short- and long-term outcomes of surgeries for aortic valve endocarditis in patients with bicuspid and tricuspid aortic valves (TAV). Patients with BAV were younger with fewer comorbidities and, not unexpectedly, better outcomes. BAV had lower numerical operative mortality, better long-term survival, but greater reoperative rates compared with TAV. Although the subtypes of streptococci were not specified, *Streptococcus* was most common organism in BAV whereas *Enterococcus* was more common in TAV. Mouth flora (ie, *Streptococcus viridans*) has been demonstrated to account for most cases of BAV IE.[5] Therefore, prophylaxis for dental procedures in "high-risk" patients with BAV was proposed for IE prevention. However, after guidelines recommended no dental prophylaxis for BAV in 2007,[6] there has been no evidence of increasing *S viridans* IE. In addition, adverse drug reactions and antibiotic resistance development do not support the use of prophylactic antibiotics. Therefore, strict adherence to general preventive measures put forth by the American and European societies is paramount.[7,8] It is unknown whether patients were aware of their BAV or if they followed guideline recommendations. It is reasonable that at least some IE cases could have been prevented with careful guideline adherence.

Le and colleagues[4] report a greater degree of calcification and aortic stenosis in BAV with IE, as compared with TAV. The hypothesis that turbulent flow from calcification and stenosis generates endothelial damage contributes to IE is a notion that needs to be demonstrated further. Nonetheless, most "normally functioning" BAV have some "intrinsic" obstruction due to distorted anatomy, which generates turbulence and could predispose to IE.

Patients with TAV had greater rates of reoperation, primarily due to recurrent endocarditis (50%) and valve deterioration (50%). For BAV, the most common indication for reoperation was valve deterioration (86%). This highlights the younger patient population and importance of considering mechanical valves for age-appropriate candidates (45-55 years old), where compared with bioprostheses in the aortic position are associated with better survival and less reintervention.[9]

BAV is the most common congenital cardiac defect, and *S viridans* IE represents its most frequent life-threatening complication. This requires the attention of the public health and scientific communities. Until high-quality data demonstrate the benefit of antibiotic prophylaxis, early diagnosis of BAV, strict dental hygiene, and early

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detection/treatment of bacterial infections, continues to be the best management.

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