

## Significance of Transcatheter Aortic Valve Replacement

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### DESCRIPTION

Transcatheter Aortic Valve Replacement (TAVR) for nonraphe bicuspid Aortic Stenosis (AS) with coronary *versus* mixed cusp fusion. It is unknown if the shape of the cusp fusion impacts TAVR results in individuals with nonraphe bicuspid AS. This retrospective analysis included patients with severe symptomatic AS and a type-0 bicuspid aortic valve who had TAVR at hospital. The Valve Academic Research Consortium-2 guidelines were used to determine TAVR results.

Transcatheter Aortic Valve Replacement (TAVR) has become a well-established treatment option for symptomatic Aortic Stenosis (AS) in patients who are assessed to be at moderate risk thanks to its development and mounting evidence. Recent research indicates that TAVR offers positive outcomes in younger AS patients, even those at low risk. Although these results are encouraging, it is anticipated that expanding the TAVR prescription to younger AS patients may increase the percentage of TAVR recipients with bicuspid morphology [1]. The feasibility and effectiveness of TAVR in AS patients with bicuspid aortic valve have been reported in a number of trials, although the findings were inconsistent. Bicommisural valves without raphe are equivalent to type-0 bicuspid valves, according to a categorization of bicuspid valves based on leaflet shape and orientation that was developed in an effort to make comparisons easier [2].

The current study enrolled consecutive patients with severe AS symptoms who had TAVR at our facility. Our TAVR cardiac team had a lengthy discussion on the TAVR indication. All patients gave their free, voluntary, and informed agreement to undertake the suggested treatments. The institutional review board of our hospital gave its approval to this retrospective investigation. The categorization put forward by Sievers and Schmidtke was used to determine the type-0 bicuspid aortic valve morphology. According to Jilaihawi's classification, type-0 bicuspid valves were further divided into coronary and mixed cusp fusion subtypes based on cusp fusion morphology. The procedures follow those used in our earlier investigation, which

was published by Liao. Multisliced computed tomography was used to evaluate the aortic root before to TAVR in order to select the right valve size (MSCT). The volume of aortic root calcification was computed using FluoroCT 3.0 (Circle Cardiovascular Imaging Inc., Calgary, Canada), whilst the dimensions of the aortic root were assessed on the MSCT scan using the OsiriX DICOM viewer software (OsiriX Foundation, Geneva, Switzerland). An annulus was defined as a plane that is below all of the points of the bicuspid valvular cusp and goes through its two lowest points [3-5].

The TAVR procedure's complete details were presented elsewhere. The best approach path was chosen by the TAVR heart team. In this series, four different types of THVs were employed, including the first-generation VitaFlow (MicroPort, China), second-generation Lotus (Boston Scientific, USA), and first-generation Medtronic CoreValve (Medtronic, USA) and Venus-A (Venus Medtech, China). Self-expanding valves include the Medtronic CoreValve, Venus-A, and VitaFlow. In our earlier work, the Venus-A valve was thoroughly characterised. A bovine pericardial leaflet, a nitinol stent with low density, big cells, and a longer polyethylene glycol terephthalate skirt that extends beyond the inflow section to enhance sealing and decrease paravalvular leakage make up VitaFlow (PVL). The operator made the decision to pre- and post-dilates the balloon.

### CONCLUSION

Echocardiography was used to assess the severity of post-TAVR PVL, which was graded as none/trace (grade 0), mild (grade 1), moderate (grade 2), and severe (grade 3). (grade 3). Implantation of an extra valve was taken into consideration in patients with moderate or severe aortic regurgitation who did not respond to postdilatation. The outcomes of TAVR in AS patients with type-0 bicuspid aortic valve were affected by cusp fusion shape (coronary *vs* mixed). In AS patients with type-0 bicuspid valves, second-generation THVs could offer better results, but further research is necessary to discover the ideal oversizing ratio for various THVs.

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