

Possible Subclinical Leaflet Thrombosis in Bioprosthetic Aortic Valves

who had received bioprosthetic aortic valves. An *in vitro* study by Ducci et al.¹ showed that TAVR produced substantial alteration of the flow pattern in the sinuses of Valsalva, creating regions of blood stasis that could lead to thrombus formation. This abnormal condition is not observed after conventional surgical aortic-valve replacement because the complete resection of the calcified leaflets allows preservation of the natural geometry and vortex dynamics of the aortic root. Moreover, with the use of TAVR implants, there is often angular or rotational misalignment with the sinuses and coronary ostia; this could further impair local blood flow.

The data reported by Makkar et al. and Ducci et al. suggest that the use of bioprosthetic valves *per se* is not sufficient to guarantee correct leaflet dynamics and avoid the need for anticoagulation. This finding may be particularly alarming in light of what has been clinically observed with surgical bioprostheses.²⁻⁴ The data reported by Ducci and colleagues need to be taken into account when considering the use of TAVR in patients who cannot be treated with anticoagulants and in lower-risk patients.

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No potential conflict of interest relevant to this letter was reported.

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TO THE EDITOR: Makkar et al. describe the phenomenon of reduced leaflet motion in patients

DOI: 10.1056/NEJMc1600179