THROMBOSIS LEAFLET MOTION AFTER TAVI OR SAVR

Patients with bioprosthetic aortic valves have reduced aortic valve leaflet motion, as evaluated on four-dimensional, volume-rendered CT. This finding, published in *The New England Journal of Medicine*, might have the potential to guide clinical trials of adjunctive antithrombotic therapy after transcatheter aortic valve implantation (TAVI) or surgical aortic valve replacement (SAVR).

Four-dimensional, volume-rendered CT scans were obtained from 55 patients in a TAVI clinical trial, and from 132 patients from two single-centre registries that included patients who underwent TAVI or bioprosthetic SAVR. Data on the use of antithrombotic medications were also collected to evaluate their effect in resolving reduced leaflet motion.

A decrease in leaflet motion was observed in 40% of patients in the TAVI trial, and in 13% of patients in the two registries. Reduced leaflet motion was less prevalent among patients receiving therapeutic anticoagulation with warfarin compared with dual antiplatelet therapy, in both the TAVI clinical trial (0% and 55%, respectively; $P=0.01$) and in the two pooled registries (0% and 29%, respectively; $P=0.04$). In patients who had a follow-up CT scan, normal leaflet motion was restored in all 11 patients who were receiving anticoagulation, but in only 1 out of 10 patients not receiving anticoagulation ($P<0.001$). The incidence of stroke or transient ischaemic attack (TIA) was not different between patients in the clinical trial with reduced leaflet motion and normal leaflet motion; however, a significant difference was detected in patients in the registries ($P=0.007$).

The study investigators acknowledge that their analysis is “limited by the absence of pathological confirmation, so the interpretation of reduced leaflet motion as thrombosis is based only on the imaging characteristics and its resolution with anticoagulation”. Furthermore, they reiterate that the observation that patients with reduced leaflet motion have an increased incidence of stroke or TIA is “preliminary and inconclusive”, and conclude that “further and more systematic study of this phenomenon to clarify the mechanisms and assess the clinical consequences seems desirable”.

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Original article Makkar, R. R. et al. Possible subclinical leaflet thrombosis in bioprosthetic aortic valves. *N. Engl. J. Med.* doi:10.1056/NEJMoa1509233