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TO THE EDITOR

Clinical Sequelae of Leaflet Thrombosis Following Transcatheter Aortic Valve Replacement at Medium-Term Follow-Up



We read with interest the article by Ruile et al. (1) regarding leaflet thrombosis (LT) following transcatheter aortic valve replacement. The authors demonstrate that the prevalence of LT is consistent with pooled analyses (2), finding similar mortality and cerebrovascular event (CVE) rates between patients with and without LT. The study adds to the published reports and provides important prognostic information on patients with LT. However, we were concerned about methodological issues that have the potential to influence the conclusions drawn.

Previous studies and pooled analyses demonstrate increased risk of CVE in patients with LT (2,3). In this current study (1), rates of CVE were 2.3% at a median of 406 days, much lower than reported in previous randomized trials (4). Such low event rates undoubtedly reduce our ability to detect meaningful statistical differences between groups. Follow-up was also performed via questionnaires/telephone interviews, which potentially leads to underreporting of brief, but important, events, such as transient ischemic attacks. This is concerning because LT appears most strongly associated with the occurrence of transient ischemic attacks (2,3).

The authors also defined LT as hypoattenuated leaflet thickening compared with the arguably more important imaging endpoint of restricted leaflet motion that was the focus of previous trials (3,5). Restricted leaflet motion has a stronger association with CVE than hypoattenuated leaflet thickening (2), and we believe the occurrence of both findings

should be reported to ensure consistency between studies (5). Finally, the identification of early LT altered patient treatment (anticoagulation), which is very likely to have affected the risk of CVE observed. Thus, whereas we are encouraged by further studies assessing the clinical significance of LT, adequately powered trials will be required to define the true relationship between LT and CVE.

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Please note: The authors have reported that they have no relationships relevant to the contents of this paper to disclose.

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REPLY: Clinical Sequelae of Leaflet Thrombosis Following Transcatheter Aortic Valve Replacement at Medium-Term Follow-Up



We thank Dr. Rashid and colleagues for their interest in our paper. Similar to other studies, recently reviewed by Rashid et al. (1) in a meta-analysis, the patients in our study were not systematically readmitted for follow-up, and we obtained documentation of the neurological work-up. Although this approach may have resulted in underreporting of transient ischemic attacks, the rate of stroke in patients with leaflet thrombosis

(LT) in our study is comparable with those observed in nonrandomized studies (0% to 4%) (2-4). Differences compared with randomized studies may be due to the inclusion of periprocedural events, which are hardly related to LT and were thus excluded from our analysis (5). In our cohort we defined LT as hypoattenuated leaflet thickening in concordance with the current research (3,4,6). Because of an earlier diagnosis in our cohort (median 5 days post-transcatheter aortic valve replacement vs. 83 days in the study of Chakravarty et al. [2]), we observe less severe hypoattenuated leaflet thickening. Yet untreated hypoattenuated leaflet thickening progresses to restricted leaflet motion in the majority of patients (7). We agree with Rashid and colleagues that altered patient treatment might have influenced the risk for cerebrovascular events (CVEs). However, in our study only 16 of 120 patients with LT were treated with anticoagulation for 3 months. Thus, a substantial impact of anticoagulation on CVE rates appears unlikely. Rashid and colleagues point to the apparent discrepancy between our findings and those of their meta-analysis, suggesting an increased risk for CVEs. However, adding the data of our study to their meta-analysis does not reveal any significant inhomogeneity ($I^2 = 17.7\%$; $p = 0.302$) between studies, thus maintaining the association between LT and CVEs but not stroke. Nevertheless, numbers of patients and events are still small, given the low incidences of CVE. Moreover, the meta-analysis also included procedure-related strokes. We concur with the comment by Rashid and colleagues that numbers are still insufficient to end up with definite conclusions. Our study reassures us that we can await the results of ongoing larger trials before we derive any clinical consequences from LT other than careful surveillance.

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<https://doi.org/10.1016/j.jcin.2018.07.021>

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Please note: The authors have reported that they have no relationships relevant to the contents of this paper to disclose.

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RESEARCH CORRESPONDENCE

Coronary Artery Fenestration



A Promising Technique for Rescue Management of Spontaneous Intramural Hematoma With Luminal Compression

Spontaneous coronary artery dissection (SCAD) is an underdiagnosed clinical entity with a severe prognosis. Whereas conservative management is followed in asymptomatic patients with reassuring hemodynamic status and TIMI (Thrombolysis In Myocardial Infarction) flow grade 3 on angiography, high-risk SCAD with recurrent ischemia and/or hemodynamic instability necessitates revascularization (1). Because conventional percutaneous coronary intervention and surgical revascularization are technically difficult, and long-term outcomes are often suboptimal (2,3), fenestration may be a rescue option in cases of long and wide hematoma without intimal rupture. The intima is cut with a cutting or scoring balloon, allowing intramural hematoma decompression, restoring flow, and limiting the risk for hematoma progression or coronary occlusion by a large amount of clotting.

No systematic studies of fenestration have been reported. We performed a retrospective multicenter study of 71 patients (mean age 48 years, 89% women, 51% without additional risk factors, 35% presenting with ST-segment elevation myocardial infarction and 65% with non-ST-segment elevation myocardial