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value of including FH data *after* quantitative risk estimation in SA, particularly when the decision to initiate statin therapy remains less clear (4). Future data on incident ASCVD events in MASALA will allow further validation of the association between FH and CAC. In other ethnic groups, CAC is a robust maker of absolute and relative risk of future ASCVD among those with an FH (5). The absence of an association in CA was likely related to the low prevalence of FH in this group. Notable limitations include the potential for reporting errors and recall bias when assessing FH status, as well as possible ascertainment bias.

An FH was associated with a severe CAC burden in an SA population living in the United States, similar to other racial or ethnic groups, and represents a meaningful and inexpensive tool to assess ASCVD risk.

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http://dx.doi.org/10.1016/j.jcmg.2017.04.015

Please note: Dr. Nasir has reported consulting for Regeneron; and is on the advisory board of Quest Diagnostics. All other authors have reported that they have no relationships relevant to the contents of this paper to disclose.

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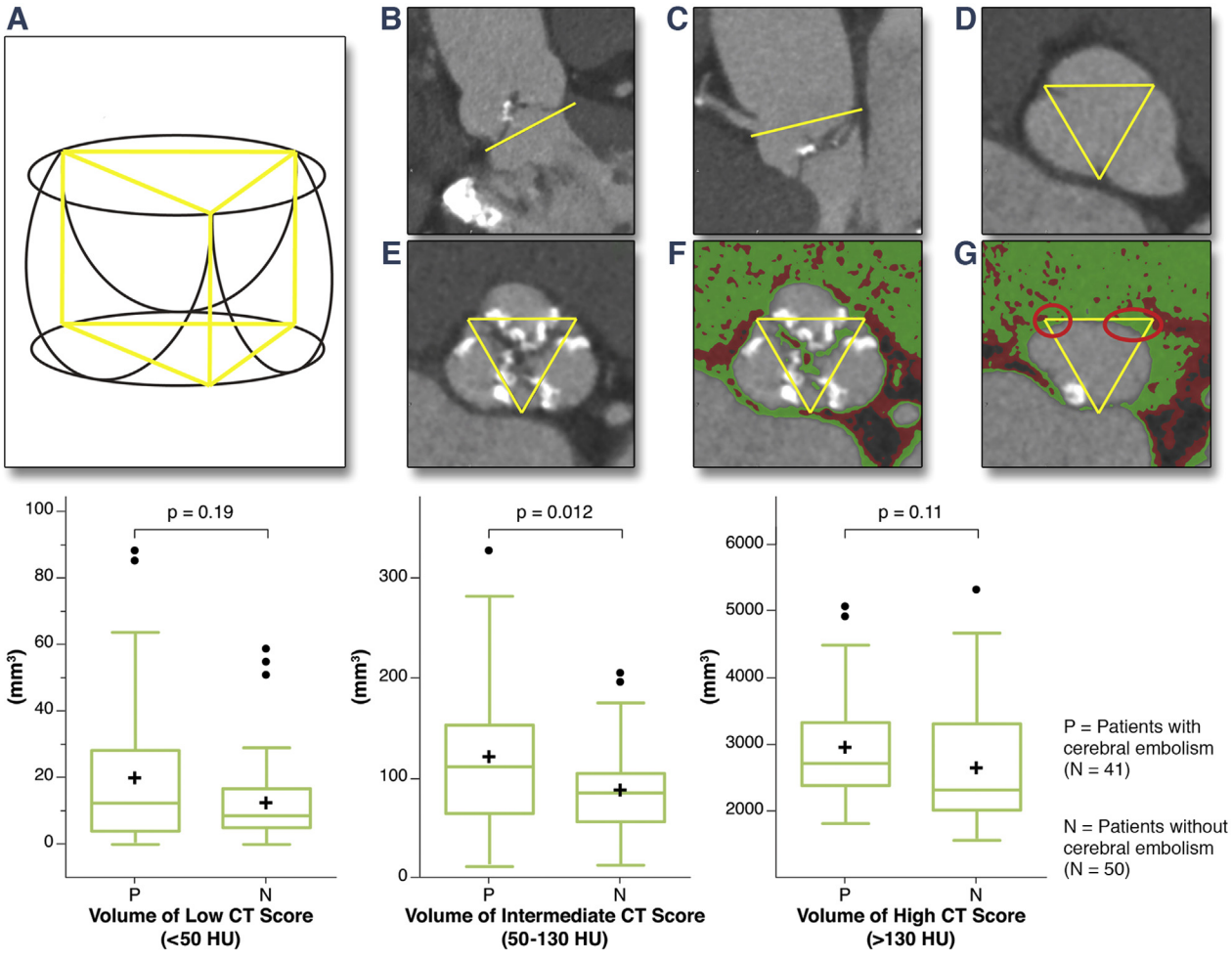
Computed Tomography Score of Aortic Valve Tissue May Predict Cerebral Embolism During Transcatheter Aortic Valve Implantation

Stroke during transcatheter aortic valve replacement (TAVR) for aortic stenosis (AS) remains a concerning complication, and its mechanism is still unclear (1). Histopathological analyses of debris captured by a cerebral protection during TAVR showed that the debris consisted of diverse material such as valve tissue, thrombus, necrotic core, and collagenous tissue in addition to calcified materials (2,3). It has been shown that the volume of aortic valve calcification assessed by computed tomography (CT) was independent of new cerebral embolism onset after the TAVR procedure (4). Therefore, we hypothesized that the volume of less-calcified tissue on the aortic valve could be associated with the risk of cerebral embolism during TAVR.

To test our hypothesis, we measured the volume of a low (<50 HU), intermediate (50 to 130 HU), and high (>130 HU) CT score of the aortic valve in 91 patients with symptomatic severe AS who underwent TAVR. In all patients, cerebral magnetic resonance imaging (MRI) was performed before and after the TAVR procedure to assess new cerebral embolism. To measure the volume of each CT score, the volume of interest was manually outlined by shaping a triangular prism on the aortic valve complex (**Figure 1A**, yellow lines). First, the basal plane was outlined at the virtual basal ring (**Figure 1B**), with the highest point of the 3 commissures as the top plane (**Figure 1C**). Next, a triangle was drawn with 3 commissure points (**Figure 1D**). The triangular prism was shaped by the triangle as its base and the basal and top planes as its height. Each CT score was colored red for low (<50 HU) and green for intermediate (50 to 130 HU). On the plane of condensed valve tissue, the triangle was drawn (**Figure 1E**) and colored (**Figure 1F**). At the virtual basal ring, the triangle was shaped, and some extravalvular spaces were excluded manually (**Figure 1G**, red circles). Finally, the volume of each CT score category was automatically measured inside the volume of interest. A high CT score (>130 HU) was measured by noncontrast CT. Written informed consent was obtained from each patient.

Of a total of 91 patients (SAPIEN XT [Edwards Lifesciences, Irvine, California], n = 86; CoreValve [Medtronic, Minneapolis, Minnesota], n = 5), 41 (45.1%) had a diagnosis of new cerebral embolic lesions on MRI after TAVR. The volume of aortic valve

FIGURE 1 CT Score Measurement and Comparison of Volume of Each CT Score Between Groups With and Without New Cerebral Embolism



Method of computed tomography (CT) score measurement to assess the aortic valve tissue component **(A–G),** and comparison of volume of each computed tomography score between 2 patient groups with and without new cerebral embolism **(bottom).**

plaques with an intermediate CT score (50 to 130 HU) was significantly greater (118.2 ± 74.6 mm^3 vs. 86.2 ± 43.4 mm^3; p = 0.012) in patients with new embolism than in those without embolism, although the volumes of plaques with a low CT score (<50 HU; 12.2 mm^3 [3.8 to 28.4 mm^3] vs. 8.6 mm^3 [4.8 to 16.3 mm^3]; p = 0.19; median interquartile range) and a high CT score (>130 HU; 2,946 ± 806 mm^3 vs. 2,655 ± 904 mm^3; p = 0.11) were similar (**Figure 1**, bottom). The cutoff value of the volume of plaques with an intermediate CT score (50 to 130 HU) to assess the risk of new cerebral embolism was 110.0 mm^3 by the Youden index in receiver-operating characteristic curve analysis (area under the curve: 0.626; odds ratio: 3.32; 95% confidence interval: 1.36 to 8.11; p = 0.007).

Simultaneous observations with intravascular ultrasound and CT imaging have shown CT scores for coronary artery plaque components as lipids (<50 HU), fibrous tissues (50 to 130 HU). and calcifications (>130 HU), and a calcification detection threshold of 130 HU is clinically accepted (5). We defined a CT score of <130 HU as noncalcified AS tissues in this study, although the classification of aortic valve tissue components by the Hounsfield scale is not established. A transcatheter cerebral embolic protection device did not achieve its primary endpoints (3), but a correlation existed between

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ischemic lesion volume and neurocognitive decline. Therefore, our result suggests that pre-procedural measurement of the volume of aortic valve plaque with an intermediate CT score contributes to the risk assessment of ischemic stroke and neurocognitive decline, and the cutoff value of 110.0 mm^3 of the intermediate CT score volume may be useful when making a strategic choice of cerebral embolic protection device during TAVR procedures.

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http://dx.doi.org/10.1016/j.jcmg.2017.06.005

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

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