



Imaging

VALUE OF AORTIC VALVE CALCIUM SCORE IN PREDICTING THE SUCCESS OF PERCUTANEOUS TRANSLUMINAL AORTIC VALVULOPLASTY REGARDING IMPROVEMENTS IN AORTIC VALVE AREA

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Background: Aortic valve calcification (AVC) measured by computed tomography (CT) correlates with the severity of aortic stenosis (AS) as well as with prognosis. Percutaneous transluminal aortic valvuloplasty (PTAV) is known to improve the aortic valve area (AVA) and mean gradient (MG) in the short term. We hypothesized that AVC would help predict improvement in AVA after PTAV.

Methods: Patients with LVEF $\geq 50\%$, AVA $\leq 1\text{cm}^2$ by echo, and a non contrast CT who underwent PTAV were included. AVC was quantified using the area-density method. The AVA before, within 14 days post procedure, and on long term follow up were obtained using echocardiography.

Results: 37 patients had PTAV, CT, and echo follow up. The mean aortic valve calcium score (AVCS) was 1071 ± 1273 . Mean AVA was 0.72 ± 0.18 . On short term follow up, the AVA was 0.90 ± 0.21 ($p < 0.001$). There was no correlation between AVCS and Δ AVA at short term follow up ($r = 0.15$, $p = 0.38$). 17 patients underwent long term follow up (203 ± 172 days). Overall, most of the benefit of PTAV was lost. The Δ AVA from baseline was $-0.05 \pm 0.15 \text{ cm}^2$ ($p = 0.35$). Patients were divided into those with sustained improvement ($n = 9$) in AVA (-0.16 ± 0.07) vs. those without ($n = 8$, AVA 0.06 ± 0.14). There was no difference in AVCS ($1259 + 1399$, $1010 + 508$, $p = 0.63$).

Conclusion: There is no relationship between the AVCS and Δ AVA with PTAV in short and long term follow up. Therefore, PTAV may be successful even in more calcified valves.

