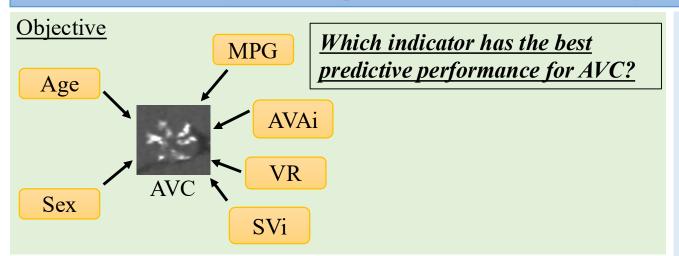
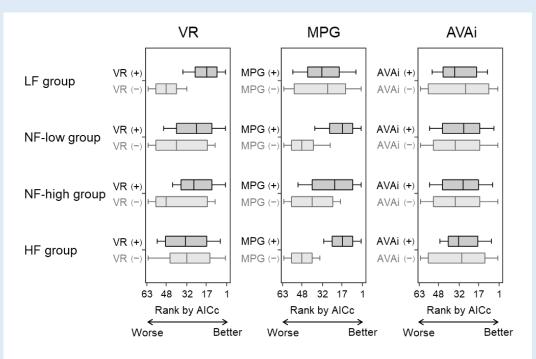
The velocity ratio as a predictor of valve calcium degeneration in aortic stenosis with low-flow status



Methods

- > Study design: Single-center, retrospective, cross-sectional study
- Study population: At least mild aortic stenosis ($V_{max} \ge 2.5$ m/s or AVA ≤ 2.0 cm 2) who underwent electrocardiography-gated multidetector computed tomography and comprehensive Doppler echocardiography between July 2018 and June 2023
- ➤ Grouping: LF: N = 59, NF-LF: N = 161, NF-HF: N = 136, HF: N = 49
- Analysis
- We created multiple regression models for the AVC score with all possible combinations of the independent variables of age, sex, VR, MPG, AVAi, and SVi $(2^6 1 = 63 \text{ models})$.
- In all models, we calculated the AICc; the model with the lowest AICc was considered the most plausible among the 63 models.
- To assess the relative importance of each echocardiographic indicator, the ranks of the 32 models including a given indicator and those of the 31 models excluding the indicator were compared using the Mann–Whitney *U* test.

Results



VR (+) / VR (-): the regression models including VR / excluding VR MPG (+) / MPG (-): the regression models including MPG / excluding MPG AVAi (+) / AVAi (-): the regression models including AVAi / excluding AVAi

Variables in the top three models in the LF group

#1: VR, age, female sex

#2: VR, female sex

#3: VR, age, female sex, and SVi

AICc, corrected Akaike information criterion; AVA, aortic valve area; AVAi, aortic valve area indexed to body surface area; AVC, aortic valve calcium; HF, high flow LF, low flow; MPG, transvalvular mean pressure gradient; NF, normal flow; SVi, stroke volume index; V_{max} , peak aortic jet velocity; VR, velocity ratio.