

A peak jet velocity > 3.5m/s in classical low-flow low-gradient aortic stenosis indicates true severity

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BACKGROUND

Classical low-flow, low-gradient (LF/LG) aortic stenosis (AS) is subclassified into a true-severe (TS) and a pseudo-severe (PS) subform using low-dose dobutamine stress echocardiography (DSE). A resting peak jet velocity (Vmax) > 3.5m/s or a mean transvalvular gradient (MPG) > 35mmHg suggests the presence of TS classical LF/LG AS, but there is no data to support this. The aim of this study was therefore to investigate whether a resting Vmax > 3.5m/s or MPG > 35mmHg reliably predicted diagnosis of TS classical LF/LG AS.

METHODS

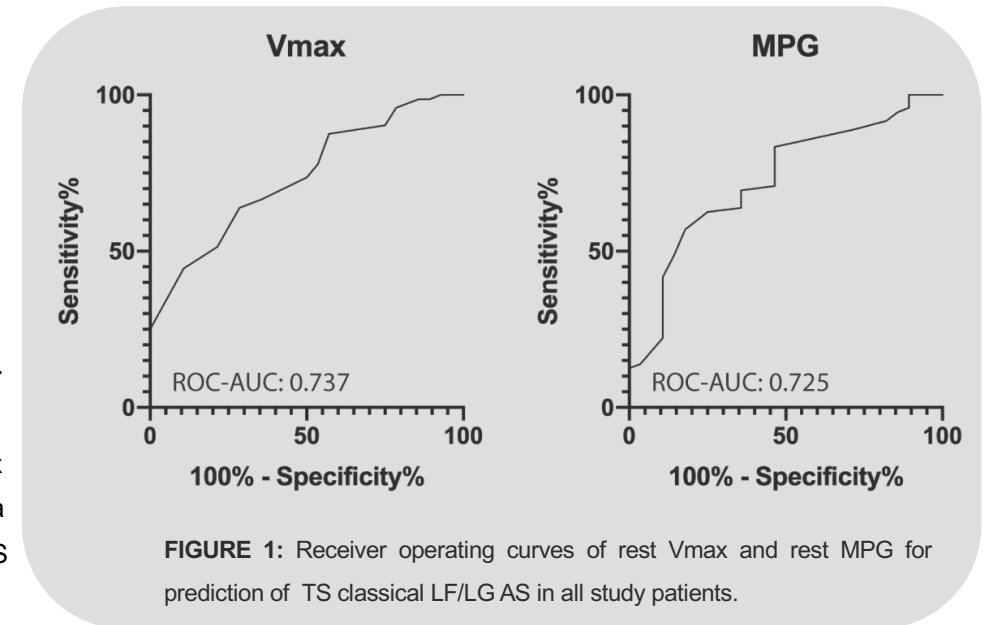
One hundred (100) consecutive patients with classical LF/LG AS were prospectively recruited. All patients underwent DSE for subcategorization. The impact of Vmax and MPG for the presence of the TS subform was analyzed.

RESULTS

TS classical LF/LG AS was diagnosed in 72 patients. Resting Vmax and resting MPG predicted true-severity with an ROC-AUC of 0.737 (95%CI: 0.635-0.838; p<0.001) and 0.725 (95%CI: 0.615-0.834; p<0.001), respectively. The optimal positive predictive value (PPV) for the diagnosis of TS classical LF/LG AS was obtained with a resting Vmax > 3.5m/s or resting MPG > 35mmHg. In a multivariate logistic regression analysis, Vmax > 3.5m/s was independently associated with a 5.33-fold Odds-Ratio of TS classical LF/LG AS (OR 5.33; 95%CI: 1.34-21.18, p=0.018).

CONCLUSION

TS classical LF/LG AS can be reliably predicted by a resting Vmax > 3.5m/s or a resting MPG > 35mmHg. Further imaging for subclassification is not needed in this situation.



	Univariate		Multivariate	
	OR (95% CI)	P	OR (95% CI)	P
LVEDD (cm)	1.24 (0.70-2.19)	0.461		
IVS thickness (cm)	0.45 (0.09-2.20)	0.323		
EF (%)	0.95 (0.90-1.00)	0.049	0.95 (0.88-1.02)	0.160
SV (ml/m2)	0.89 (0.80-0.99)	0.029	0.96 (0.84-1.10)	0.554
Vmax (m/s)	9.62 (2.71-34.09)	0.002	8.29 (2.08-33.03)	0.003
MPG (mmHg)	1.14 (1.05-1.24)	0.002		
AVA (cm2)	0.01 (0.00-0.45)	0.016	0.06 (0.00-3.81)	0.186

TABLE 1: Univariate and multivariate logistic regression analysis of baseline parameters for the prediction of TS classical LF/LG AS.

