

Table 6 Application of specific and supportive signs, and quantitative parameters in the grading of aortic regurgitation severity

	Mild	Moderate	Severe	
Specific signs for AR severity	<ul style="list-style-type: none"> ● Central Jet, width < 25% of LVOT[‡] ● Vena contracta < 0.3 cm[‡] ● No or brief early diastolic flow reversal in descending aorta 	Signs of AR>mild present but no criteria for severe AR	<ul style="list-style-type: none"> ● Central Jet, width ≥ 65% of LVOT[‡] ● Vena contracta > 0.6cm[‡] 	
Supportive signs	<ul style="list-style-type: none"> ● Pressure half-time > 500 ms ● Normal LV size* 	Intermediate values	<ul style="list-style-type: none"> ● Pressure half-time < 200 ms ● Holodiastolic aortic flow reversal in descending aorta ● Moderate or greater LV enlargement** 	
Quantitative parameters[‡]				
R Vol, ml/beat	< 30	30-44	45-59	≥ 60
RF, %	< 30	30-39	40-49	≥ 50
EROA, cm ²	< 0.10	0.10-0.19	0.20-0.29	≥ 0.30

AR, Aortic regurgitation; EROA, effective regurgitant orifice area; LV, left ventricle; LVOT, left ventricular outflow tract; R Vol, regurgitant volume; RF, regurgitant fraction.

* LV size applied only to chronic lesions. Normal 2D measurements: LV minor-axis ≤ 2.8 cm/m², LV end-diastolic volume ≤ 82 ml/m² (2).

[‡] At a Nyquist limit of 50–60 cm/s.

** In the absence of other etiologies of LV dilatation.

[‡] Quantitative parameters can help sub-classify the moderate regurgitation group into mild-to-moderate and moderate-to-severe regurgitation as shown.

Diastolic jet deceleration. The rate of deceleration of the diastolic regurgitant jet and the derived pressure half-time reflect the rate of equalization of aortic and LV diastolic pressures. With increasing severity of AR, aortic diastolic pressure decreases more rapidly. The late diastolic jet velocity is lower and hence pressure half-time is shorter.⁶⁶ Pressure half-time is easily measured if the peak diastolic velocity is appropriately recorded. A pressure half-time > 500 ms is usually compatible with mild AR whereas a value <200 ms is considered consistent with severe AR (Figure 6). However, the diastolic AR velocity is also determined by LV diastolic compliance and pressure. For a given severity of AR, pressure half-time can be further shortened by an elevated LV diastolic pressure or by vasodilator therapy that reduces AR.^{66,67} On the other hand, pressure half-time can be lengthened or normalized with chronic LV adaptation to severe AR.⁶⁸