

**Table 6** Echocardiographic parameters and related comments in the assessment of MR severity with TTE after transcatheter MV interventions

Parameter	Assessing residual MR after MV interventions
<b>Color Doppler</b>	
Color Doppler MR jet(s)	<ul style="list-style-type: none"> <li>• Multiple jets can lead to overestimation of MR severity</li> <li>• MV device artifacts/shadowing may mask MR jet (TTE) or flow convergence (TEE).</li> <li>• PVR often difficult to identify, localize and quantify by TTE; TEE often needed</li> <li>• Eccentric jets difficult to evaluate and harder to detect (out of imaging plane)</li> </ul>
Flow convergence	<ul style="list-style-type: none"> <li>• Small, suggests mild MR; large suggests significant MR</li> </ul>
Vena contracta width	<ul style="list-style-type: none"> <li>• Often better defined with TEE</li> <li>• Not validated for multiple jets or various interventions</li> </ul>
Vena contracta area (3D)	<ul style="list-style-type: none"> <li>• Better defined with TEE</li> <li>• May be useful after edge-to-edge repair; likely a preferred method for CD quantitation but limited studies available</li> </ul>
<b>Spectral Doppler</b>	
CW Doppler of MR jet	<ul style="list-style-type: none"> <li>• Parabolic contour and soft density suggest mild MR</li> <li>• Dense and triangular velocity waveform suggests significant MR</li> </ul>
Pulmonary vein flow pattern	<ul style="list-style-type: none"> <li>• Systolic flow reversal specific for severe MR</li> <li>• Flow pattern influenced by multiple factors: LA pressure, LV filling pressure, atrial fibrillation</li> <li>• Difficult to record with prosthetic mitral valves</li> </ul>
Mitral inflow pattern	<ul style="list-style-type: none"> <li>• Mitral E-wave dominance affected by multiple factors: increased MR severity, LV filling pressure, and relative MV obstruction from implanted MV devices</li> <li>• Mitral A-wave dominance suggests mild MR</li> </ul>
<b>Quantitative parameters</b>	
EROA and RVol by PISA	<ul style="list-style-type: none"> <li>• Not recommended in the presence of MV devices, including edge-to-edge repair (not validated for multiple jets, double orifice MV, or eccentric jets)</li> </ul>
Volumetric RVol and RF	<ul style="list-style-type: none"> <li>• Requires excellent LV endocardial definition to quantitate LV stroke volume; best used with 3D echo or contrast echo so as not to underestimate LV stroke volume and hence RVol/RF</li> <li>• Cannot use mitral annulus site for flow because of MV devices (except MV annuloplasty)</li> <li>• Multiple measurements may compound errors</li> <li>• Not accurate if &gt;mild aortic regurgitation or VSD present</li> </ul>

VSD, Ventricular septal defect.

Other abbreviations as stated earlier.