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Asian Pacific Society of Cardiology Consensus Statements on the use of MitraClip for Mitral Regurgitation

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Declaration for Conflict of Interest

Speaker's name:

- **I have the following conflicts of interest to declare:**
  - **Abbott Vascular: Proctor for MitraClip, honorarium, consulting**
  - **Medtronic: Honorarium, consulting, research funding**
  - **Boston Scientific: honorarium, research funding**
  - **Peijia: Consulting**

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Expert panel members

Name	Institution	Specialty
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Takashi Matsumoto (co-chair)	Sendai Kousei Hospital, Japan	Interventional cardiology
Jack Tan (co-chair)	National Heart Centre Singapore	Interventional cardiology
David Muller	St Vincent's Clinic, Australia	Interventional cardiology
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Teguh Santoso	Medistra Hospital, Indonesia	Interventional cardiology
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Makoto Amaki	National Cerebral and Cardiovascular Center, Japan	Interventional cardiology
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Expert panel members

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Quang N Nguyen	Vietnam National Heart Institute, Vietnam	Interventional cardiology

METHOD: Consensus building

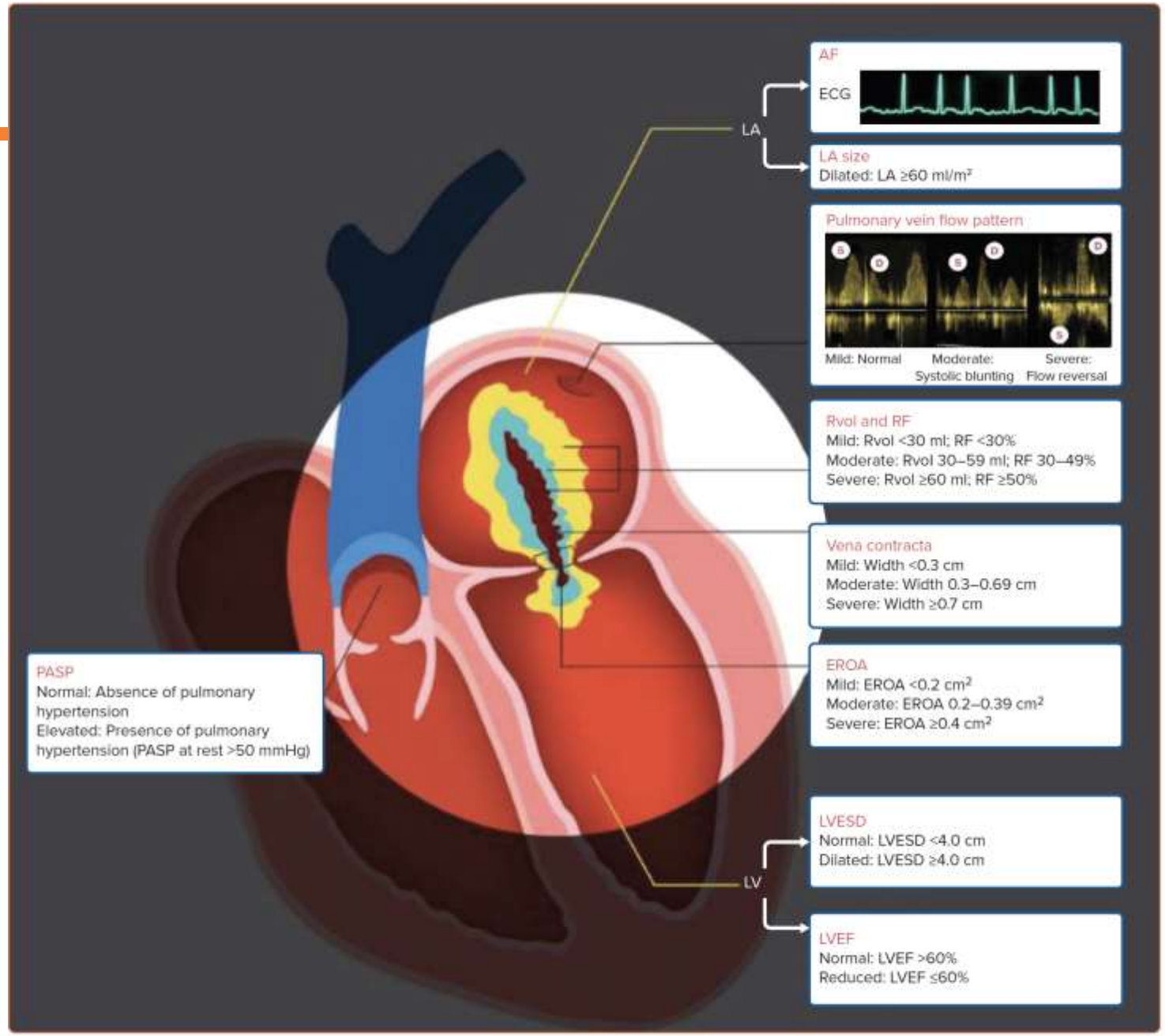
Evidence grading	Consensus building	Level of consensus

• GRADE[1]
  • High
  • Moderate
  • Low
  • Very low
	• Via online polling
	  • Agree
	  • Neutral
	  • Disagree
		• Cut-off for consensus: 80% Agree or Neutral
		• % Agree / Neutral / Disagree reported separately

Balshem H, et al. J Clin Epidemiol. 2011;64(4):401-6

Schematic diagram for mitral regurgitation

Figure 1: Schematic Illustration of Echocardiographic Parameters for Mitral Regurgitation Assessment



EROA = effective regurgitant orifice area; LA = left atrium; LVEF = left ventricular ejection fraction; LVESD = left ventricular end-systolic diameter; PASP = pulmonary artery systolic pressure; RF = regurgitant fraction; Rvol = regurgitant volume.

MitraClip use in Degenerative Mitral Regurgitation (DMR)

Statement	Level of evidence	Level of consensus
Statement 1: Both symptomatic and asymptomatic patients with ≥3+ DMR, who meet the indications for surgery but are considered high risk by the heart team, should be considered for MitraClip implantation.	Moderate	Agree 80% Neutral 16% Disagree 4%
Statement 2: MitraClip use should be considered for symptomatic high-risk ≥3+ DMR patients with or without reduced left ventricular ejection fraction (LVEF).	Moderate	Agree 84% Neutral 12% Disagree 4%
Statement 3: MitraClip use may be considered for asymptomatic patients with high-risk ≥3+ DMR, with: (1) Reduced LVEF and/or LV dilatation; or (2) New onset atrial fibrillation (AF) or pulmonary hypertension	Low	Agree 84% Neutral 16% Disagree 0%

MitraClip use in Functional Mitral Regurgitation (FMR)

Statement	Level of evidence	Level of consensus
Statement 4: MitraClip should be considered for (≥3+) symptomatic FMR patients who are already on GDMT. FMR patients should receive at least 1 month of optimised GDMT, with reasonable attempts to uptitrate treatment, as well as cardiac resynchronization therapy defibrillator (CRT-D) if indicated, before being evaluated for further intervention or MitraClip use.	High	Agree 88% Neutral 8% Disagree 4%
Statement 5: For ischaemic FMR (≥3+), coronary anatomy and ischaemia evaluation should be performed before Mitraclip consideration. If PCI is performed, staged MitraClip therapy should be considered for severe symptomatic FMR (≥3+). Ischaemic FMR (≥3+) patients requiring CABG for revascularization, concomitant surgical MV repair/replacement may be considered.	Low	Agree 100% Neutral 0% Disagree 0%
Statement 6: FMR patients should be monitored regularly (e.g., every 6 months) and referred early to the heart team (including a MitraClip specialist, heart failure specialist, echocardiologist and surgeon) for potential MitraClip implantation. Discussions and endorsements of futility should be deferred to the heart team.	Low	Agree 100% Neutral 0% Disagree 0%

Statement	Level of evidence	Level of consensus
Statement 7: Symptomatic patients with ≥3+ FMR should be assessed by the heart team for possible MitraClip implantation.	High	Agree 100% Neutral 0% Disagree 0%
Statement 8: FMR patients who do not meet the eligibility criteria for MitraClip implantation (e.g., asymptomatic patients, those with MR severity of ≤2+, and those with less-optimized GDMT) should be closely monitored. These patients should be considered for MitraClip implantation once the eligibility criteria are met.	Low	Agree 100% Neutral 0% Disagree 0%

Technical considerations for MitraClip Use

Ideal	Complex	Inappropriate
• Pathology in segment 2 • Valve area >4.0 cm^2	• Pathology in segment 1 or 3 • Posterior leaflet length <7.0 mm • Barlow's syndrome • Mitral valve cleft • Severe calcification • Prior annuloplasty • Rheumatic leaflet thickening	• Leaflet perforation • Active infective endocarditis • Moderate-to-severe mitral stenosis (MS) (valve area ≤2.0 cm^2) • Left atrial thrombus

Flowchart: Assessment and initial management of patients with ≥ 3+ FMR

≥ 3+ Functional Mitral Regurgitation (FMR)

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- Coronary anatomy and ischaemia evaluation, with revascularization, if appropriate
- Heart failure specialist to optimize medical therapy +/- CRT-D

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If persistent ≥ 3+ FMR: Re-evaluate by echocardiogram, preferably TEE for defining aetiology and TTE for assessing severity

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Refer to the heart team for MitraClip eligibility assessment

CRT-D, cardiac resynchronization therapy defibrillator; TEE, transesophageal echocardiogram; TTE, transthoracic echocardiogram.

Subgroups and special populations for MitraClip: Atrial FMR, concomitant MR/TR, acute MR, HOCM

Statement	Level of evidence	Level of consensus
Statement 9: Patients with symptomatic atrial FMR should be evaluated by the Heart Team (including an electrophysiologist and heart failure specialist) and, if treatment has already been optimised, MitraClip may be considered.	Low	Agree 96% Neutral 0% Disagree 4%
Statement 10: The expert panel acknowledges that MitraClip has been used in less common scenarios (e.g., acute MR, dynamic MR, hypertrophic obstructive cardiomyopathy [HOCM] and TR) with reasonable reports of clinical success. However, enrolment into clinical trials or registries is preferred. Patients with these less common conditions should be evaluated by the Heart Team on a per-patient basis, with informed patient consent on the limited understanding available, to determine whether MitraClip use would be feasible and beneficial for them.	Low	Agree 100% Neutral 0% Disagree 0%

Summary

- APSC Consensus for MitraClip use provides recognition for the role for TEER in severe MR patients
- General consensus recommendations for the Asia-Pacific, while recognizing gaps in current knowledge
- Broadly consistent with ESC and ACC guidelines

Thank you