E.2 Aortic stenosis – myocardial fibrosis on cardiac MRI

Figure 5: Midwall fibrosis LGE pattern compared to no LGE on cardiac MRI in moderate or severe AS (symptomatic status unclear) Midwall fibrosis LGE No LGE Hazard Ratio Hazard Ratio Study or Subgroup log[Hazard Ratio] Total IV, Fixed, 95% CI SE Total IV, Fixed, 95% CI 9.1.1 All-cause mortality (mixed medical/surgical treatment) - adjusted Dweck 2011 1.6771 0.7776 49 5.35 [1.17, 24.56] 54 0.05 0.2 Ġ, 20 Favours midwall LGE Favours no LGE on CMR

Figure 6: Infarct fibrosis LGE pattern compared to no LGE on cardiac MRI in moderate or severe AS (symptomatic status unclear)



Figure 7: Mild fibrosis compared to no fibrosis on cardiac MRI in symptomatic severe AS referred for AVR



Footnotes (1) Number in each group not reported

> 227 Heart valve disease: evidence reviews for cardiac MRI and cardiac CT Final [November 2021]

Figure 8: Severe fibrosis compared to no fibrosis on cardiac MRI in symptomatic severe AS referred for AVR



Footnotes (1) Number in each group not reported

Figure 9: LGE compared to no LGE on cardiac MRI in moderate or severe AS (proportion with severe AS was 62.2% and with any typical AS symptoms was 54.5%)



Figure 10: Fibrosis compared to no fibrosis on cardiac MRI in asymptomatic severe AS



Figure 11: LGE compared to no LGE on cardiac MRI in severe AS with/without symptoms (16.5% were in NYHA class III/IV)



Figure 12: LGE (myocardial fibrosis) compared to no LGE on cardiac MRI in severe AS undergoing AVR (28.8% with NYHA class ≥III)

		L	.GE on CMR No L	LGE on CMR	Odds Ratio				Odds	Ratio		
Study or Subgroup	log[Odds Ratio]	SE	Total	Total	IV, Fixed, 95% CI				IV, Fixed	i, 95% CI		
15.1.1 Mortality, LVE	F drop ≥ 20%, new-	onset HF	or hospitalisation	n for cardiova	scular causes and	new-onset arrythmia (mixed medical/surgical treatment) - adjusted						
Rajesh 2017	0.5188	0.5139	46	63	1.68 [0.61, 4.60]							
							0.1	n2	0.5		5	10
							0.1	Favours	I GE on CMR	Eavours no	L GE on CME	2 .0

Figure 13: LGE (myocardial fibrosis) compared to no LGE on cardiac MRI in severe AS undergoing AVR (proportion with NYHA class ≥III differed between studies but was similar – 36%, 40.1% and 27%)

				,		/					
		LC	GE on CMR	No LGE on CMR		Hazard Ratio		Hazard Ratio			
Study or Subgroup	log[Hazard Ratio]	SE	Total	Total	Weight	IV, Fixed, 95% CI		IV, Fixed, 95% CI			
17.1.1 All-cause mortality post-intervention - adjusted											
Barone-Rochette 2014	1.0296	0.4767	44	110	15.6%	2.80 [1.10, 7.13]					
Everett 2020	0.2095	0.3165	220	220	35.4%	1.23 [0.66, 2.29]					
Musa 2018	0.8713	0.2691	341	272	49.0%	2.39 [1.41, 4.05]					
Subtotal (95% CI)			605	602	100.0%	1.94 [1.34, 2.80]		◆			
Heterogeneity: Chi ^z = 3.24, df = 2 (P = 0.20); I ^z = 38%											
Test for overall effect: Z =	: 3.51 (P = 0.0004)										
							0.01	Eavours LGE on CMR Eavours no LGE on CMR			

Test for subgroup differences: Not applicable

Barone-Rochette 2014 was adjusted for NYHA class III/IV and left bundle branch block, Everett 2020 was adjusted for extracellular volume percentage, age, gender, LVEF <50% and peak aortic jet velocity and Musa 2018 was adjusted for RV ejection fraction on cardiac MRI, LVEF on cardiac MRI, indexed atrial volume on cardiac MRI, atrial fibrillation, LV maximal wall thickness, STS score, LV stroke volume score on cardiac MRI, coronary artery disease, aortic valve area on echocardiography and age. Though Barone-Rochette 2014 had not accounted for the key confounder of age, age was very similar between the two prognostic groups in this study and was therefore included in the pooled analysis.

Figure 14: LGE (myocardial fibrosis) compared to no LGE on cardiac MRI in severe AS undergoing AVR (proportion with NYHA class ≥III was 40.1%)



230 Heart valve disease: evidence reviews for cardiac MRI and cardiac CT Final [November 2021]

Figure 15: Diffuse myocardial fibrosis compared to normal myocardium on cardiac MRI in severe AS scheduled for AVR (mean NYHA class 2.1)

