K.3 LVEF on cardiac MRI in aortic stenosis

K.3.1 Research recommendation

In adults with asymptomatic severe aortic stenosis what is the prognostic value and cost effectiveness of left ventricular ejection fraction measured on cardiac MRI to assess the need for intervention?

K.3.1.1 Why this is important

Prognostic parameters that predict symptomatic deterioration, development of heart failure that may not be reversible following valve intervention or mortality inform the need for valve intervention in patients with asymptomatic severe heart valve disease to avoid poor outcome

K.3.1.2 Rationale for research recommendation

Importance to 'patients' or the population	To provide an appropriate or better alternative than echocardiography
Relevance to NICE guidance	Additional evidence may support specific recommendations on the prognostic value of left ventricular ejection fraction measured on cardiac MRI in this populations
Relevance to the NHS	The introduction of cardiac MRI for those in whom the need for intervention is unclear after echocardiography may lead to an increase in cost that, however may be balanced by the benefit in accuracy and avoidance of adverse events due to delayed intervention
National priorities	"Action on prevention" long term plan
Current evidence base	The evidence base was very limited with only a few studies identified and uncertainty present in the results
Equality considerations	None identified

K.3.1.3 Modified PICO table

Population	<u>Inclusion</u> Adults aged 18 years and over with diagnosed asymptomatic severe aortic stenosis requiring

	further tests after echocardiography to determine whether intervention is needed. <u>Exclusion</u> • Children (aged <18 years) • Adults with congenital heart disease (excluding bicuspid aortic valves). • Adults with previous intervention for HVD (surgical or transcatheter).
Prognostic variables	Left ventricular ejection fraction measured on cardiac MRI
Outcome	Indication for intervention based on prognosis for the following without intervention: • Mortality (1 and 5 years) • Hospital admission for heart failure or unplanned intervention (1 and 5 years) • Reduced cardiac function (echo parameters – LVEF) 1 and 5 years • Symptom onset or symptom worsening (e.g. that led to surgery being required) 1 and 5 years Indication for intervention based on predictors of the following post-operative outcomes: • Mortality (6 and 12 months) • Hospital admission for heart failure (6 and 12 months) • Reduced cardiac function (echo or cardiac MRI parameters – for example LVEF <50%) (6 and 12 months) • Return to normal LV volumes post-operatively based on echo or cardiac MRI as defined in the study (6 and 12 months) • >20% reduction in LV volume post-operatively based on echo or cardiac MRI (6 and 12 months)
Study design	Cohort adjusted for all key confounders
Timeframe	Long term
Additional information	None