Abstract: P5

Clinical utility of stress echocardiography in remote indigenous and non-indigenous populations: a 10-year study in central Australia

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Topic(s):
Stress Echocardiography

Citation:
Background: Central Australia is a vast, geographical region spanning some 830,000 square kilometres. It is the most populous Indigenous region in Australia (44%) and a great distance from tertiary centres (1,500km). Non-invasive testing is important in this setting due to the high prevalence of cardiovascular disease and long-distance travel required for coronary angiography, the latter with significant logistical, financial, and cultural barriers. Although stress echocardiography has been extensively validated as a long-term prognostic tool in selected populations, we are not aware of prior studies in remote Indigenous and non-Indigenous individuals.

Purpose: To determine whether stress echocardiography can adequately risk stratify and quantify the long-term prognosis of Indigenous and non-Indigenous individuals in remote Central Australia.

Methods: Consecutive individuals undergoing stress echocardiography in Central Australia between 2007 and 2017 were included. Exercise or dobutamine stress echocardiography was performed and reported via standard protocols. Individuals were followed up for the primary outcome of all-cause mortality.

Results: One thousand and eight patients (54% Indigenous, 63% dobutamine stress) were included. Indigenous patients were younger, more likely to be female, and had a greater prevalence of cardiometabolic comorbidities (p<0.05 for all). Overall, 797 (79%) patients had no abnormality during rest or stress echocardiography, with no difference according to ethnicity (p>0.05). After a mean follow up of 3.5±2.4 years, 54 (5%) of patients were deceased; 127 (14%) patients underwent revascularization and were censored from follow-up. In patients with a normal test, annual mortality averaged 1.3% over 5 years of follow up, with annual mortality being significantly higher in Indigenous compared to non-Indigenous individuals (2.0% vs 0.6% respectively). Individuals with either ischemia or scar had a significantly worse long-term outcome compared to those with a normal test (Figure). In multivariate analyses, increasing age (HR 1.04 [95% CI 1.01-1.08]), chronic kidney disease (HR 4.83 [1.79-13.02]), and lack of ACEI/ARB use (HR 0.19 [95% CI 0.09-0.42]) were associated with all-cause mortality. Although Indigenous ethnicity was a univariate predictor of mortality, this association was attenuated and non-significant in multivariate analyses.

Conclusion: Indigenous patients in remote Central Australia with a normal stress echocardiogram had a significantly higher annual rate of mortality compared to their non-Indigenous counterparts. However, this association may be in large part due to comorbid conditions. A normal test in Indigenous individuals was still able to adequately risk-stratify and identify a lower risk group of patients in whom ongoing local medical management and focusing on cardiometabolic risk factor reduction is likely to be appropriate.
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