

Poster presentation

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Cardiac magnetic resonance predicts cardiac catheter findings for great artery stenosis in children with congenital heart disease

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Introduction

To assess validity of Cardiac MRI in diagnosing great artery stenosis

Purpose

To assess the cardiac catheterization (CC) findings of all children in whom cardiac magnetic resonance (CMR) found great artery stenosis.

Methods

Retrospective analysis of all 45 consecutive children with congenital heart disease undergoing CC for intervention on CMR-defined great vessel stenosis, between January 2006 and August 2008.

Results

Following CMR, 60 significant great vessel stenoses were identified and referred to CC for intervention. All patients were catheterized within a median (interquartile range) 84 (4 - 149) days of CMR. At CC the children were aged 11.5 (3.8 - 16.9) years and weighed 34 (15 - 56) kg. Comparing CMR and CC findings, 53 (88%) findings were concordant and 7 were discordant. In 6/7 (86%), discordant observations, CMR defined moderate-severe great vessel stenosis (3 branch pulmonary arteries and 3 aortas). This was not confirmed by CC, which revealed mild stenoses and haemodynamic gradients insufficient to intervene. In 1 patient mild, proximal RPA narrowing was found at CC, which was not mentioned in the CMR report. There was no difference between discordant and

concordant groups on the basis of patient age, weight, interval between CMR and CC, or type of lesion.

Conclusion

Invasive assessment confirmed CMR-diagnosed great vessel stenosis in the majority of this cohort. The predominant discordant finding was a lower catheterization gradient than predicted by morphologic and functional CMR assessment. Flow volume diversion (e.g. unilateral PA stenosis) and anaesthetic effects may account for some differences. Prospective refinement of CMR and interventional data may further improve the validity of non-invasive imaging thresholds for intervention.