

Meeting abstract

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201 Can cardiovascular MRI be used as a definitive test to characterize cardiac masses initially identified using echocardiography?

Anna Czajka*¹, Robert WW Biederman², Mark Doyle², Tarun Tewatia², Diane A Vido² and Vikas K Rathi²

Address: ¹Allegheny General Hospital/University of Pittsburgh Medical Center, Pittsburgh, PA, USA and ²Allegheny General Hospital, The Gerald McGinnis Cardiovascular Institute, Pittsburgh, PA, USA

* Corresponding author

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Background

Cardiac or paracardiac masses on echocardiography (ECHO) invariably lead to further diagnostic workup including invasive tests, which can be associated with significant morbidity and mortality. Cardiac MRI (CMR) is non-invasive modality with a wide field of view and permits tissue characterization, which can definitively establish a diagnosis.

Methods

Between Jan '02 and Aug '07, 157 consecutive patients (pts; 63 yrs, 44% males, 56% females) with suspected cardiac or paracardiac masses on ECHO underwent CMR (GE 1.5 T). CMR sequences: T1W, T2W, 2IR, FIESTA ± gadolinium.

Results

CMR was technically adequate in 99% patients (n = 1, with uncorrectable claustrophobia). In 41 patients no mass was seen, out of which 26 patients (63%) were normal variants (ie. crista terminalis, trabeculations etc.) explaining the initial ECHO observations. In 116 patients (74%), a true mass was present on CMR. In the vast majority (97%) CMR not only identified the mass, but also provided a specific diagnosis. It classified 56% of masses as benign fat, 18% benign tumor, 11% neoplastic, 10% thrombus, 3% vegetation and 2% as hernias. In CMR-confirmed masses, the diagnosis by ECHO and

CMR agreed in *only* 27% of patients. In the remaining 73%, the ECHO diagnosis of mass was very nonspecific. Of 6 masses identified as neoplastic by CMR, neoplasia was proven on biopsy (100% concordance). In the remaining 7 patients, biopsy was not performed, based in part on the official findings of the CMR report. Overall, in 68% (n = 107), a diagnosis by CMR obviated the need for further testing. In another 32%, CMR significantly changed the initial referring diagnosis and subsequent patient management and was deemed 'life changing' in 16% (ie. myxoma to fat, thrombus to myxoma or thrombus to malignant tumor, etc.). In 3% of patients, CMR could not provide a specific diagnosis but granted a narrow differential diagnosis.

Conclusion

CMR's inherent tissue characterization and excellent spatial resolution can accurately differentiate normal from abnormal and benign from malignant masses while markedly obviating the need for more invasive and less accurate transesophageal ECHO and/or CT scan. Moreover, CMR significantly decreases the number of invasive biopsies, particularly of benign masses, making CMR an essential non-invasive test in all cases of suspected cardiac and paracardiac masses.