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CARDIOVASCULAR MAGNETIC RESONANCE IN THE EVALUATION OF FIBROFATTY INFILTRATION FOR ARRHYTHMOGENIC RIGHT VENTRICULAR DYSPLASIA/CARDIOMYOPATHY (ARVD/C)

Poster Contributions
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Background: The purpose of this study was to determine cardiac magnetic resonance (CMR) impact in diagnosis of arrhythmogenic right ventricular dysplasia/cardiomyopathy (ARVD/C). We also studied how intramyocardial fat or fibrofatty infiltration imaged by CMR might influence diagnostic categorization beyond current guidelines.

Methods: 311 consecutive patients (pts) referred for possible ARVD/C had CMR with cine and late gadolinium enhancement (LGE) imaging. Of these, 69 also had cardiac optimized multiecho fat-water separation (FWS) to define intramyocardial fat. Pts with cine, fat and fibrosis imaging were analyzed. Fibrofatty infiltration (FFI) was defined as the presence of both LGE and fat. 2010 ARVD/C Task Force Criteria was the gold standard for ARVD/C diagnosis.

Results: ARVD/C diagnosis without and with CMR for the 69 pts (44 ± 15 yrs, 58% male) with FWS is summarized in the Figure. After CMR, 28% (19/69) pts met definite, borderline or possible ARVD/C criteria. In 5 pts with definite criteria for ARVD/C (Figure; RVEF = 36 ± 9%, RVEDV = 260±71mL), FFI was identified in 80% (4/5) of these pts. Only 7% (1/14) of pts with borderline or possible ARVD/C criteria had FFI. All 5 definite ARVD/C pts had defibrillator implantation.

Conclusions: The combination of FWS imaging and LGE can characterize the presence of FFI in pts with definite ARVD/C. The use of CMR tissue characterization may strengthen diagnostic confidence for the diagnosis of ARVD/C without invasive myocardial biopsy.

Table: Impact of CMR on Diagnosis of ARVD/C (n=69)

	2010 Guidelines without CMR, n (%)	2010 Guidelines with CMR, n (%)	2010 Guidelines with CMR + Fat, n (%)	2010 Guidelines with CMR + Fibrofatty, n (%)
Definite Criteria ARVD/C	1 (1)	5 (7)	5 (7)	4 (6)
Borderline ARVD/C	1 (1)	5 (7)	1 (1)	0 (0)
Possible ARVD/C	7 (10)	9 (13)	1 (1)	1 (1)
Patients with 1 or no Minor Criteria, not meeting criteria of "Definite", "Borderline", or "Possible" and Alternative Diagnoses	60 (87)	50 (72)	10 (14)	1 (1)
			52 (75) No Fat	63 (91) No Fibrofatty Infiltration