

## Anderson-Fabry disease: beyond what "eyes can see"

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**Introduction:** cardiac magnetic resonance (CMR) plays a major role in the assessment of cardiac involvement in Anderson-Fabry (ADF) disease and in subsequent therapeutic decisions.

CMR feature tracking (CMR-FT) allows a fast and accurate assessment of strain analysis avoiding the need of additional sequences.

**Purpose:** assess the utility of CMR-FT in the evaluation of the cardiac involvement by AFD.

**Methods:** included seventy-six consecutive genetically proven ADF patients, from a single reference center, and thirty-nine controls (matching for age and sex). The participants provided written informed consent. CMR-FT was performed by a level III operator using a dedicated software.

**Results:** Globally, AFD patients had worse strain results (table 1). But even patients both without left ventricle hypertrophy and without presence of late gadolinium enhancement (52.6%) had worse results when comparing to controls (values not presented). In this particular sub-group, parameters with higher area under the curve (AUC) were longitudinal strain rate ( $p < 0.001$ ; AUC 0.84; cut-off value of -0.93%, sensibility 85%, specificity 70%) and circumferential strain rate ( $p < 0.001$ ; AUC 0.88; cut-off -1.00%, sensibility 85%, specificity 70%).

**Conclusion:** even in very initial stages, strain is already affected in AFD. CMR-FT can provide additional data without lengthening a CMR study.

table 1: main CMR results

Parameters	AFD	Controls	p value
LV ejection fraction (%)	62.38 ± 6.51	64.18 ± 5.93	0.122
LV 2D strain analysis - peak strain, global (%)			
- radial	39.44 ± 8.69	48.64 ± 11.28	0.000
- circumferential	-19.52 ± 3.16	-22.23 ± 2.54	0.000
- longitudinal	-17.41 ± 3.70	-19.63 ± 2.03	0.000
Radial strain rate	1.82 ± 0.65	2.92 ± 1.05	0.000
Circumferential strain rate (%)	-0.84 ± 0.23	-1.23 ± 0.32	0.000
Longitudinal strain rate (%)	-0.74 ± 0.17	-1.04 ± 0.20	0.000
LV 3D strain analysis -peak strain, global (%)			
- radial	29.16 ± 8.55	33.85 ± 9.67	0.003
- circumferential	-15.24 ± 2.66	-16.86 ± 2.07	0.000
- longitudinal	-14.23 ± 2.49	-15.82 ± 1.51	0.000
RV peak strain, global circumferential (%)	-12.58 ± 3.20	-14.86 ± 3.83	0.001
RV peak strain, longitudinal (%)	-26.31 ± 4.21	-27.64 ± 2.86	0.071

LV - left ventricle RV- right ventricle 2D - two-dimensional 3D - three-dimensional