


## Research Article

# Cardiovascular Magnetic Resonance Imaging Evidence of Edema in Chronic Chagasic Cardiomyopathy

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The persistence of inflammatory processes in the myocardium in varying degrees of chronic Chagas heart disease has been poorly investigated. We hypothesized that edema could occur in patients with chronic chagasic cardiomyopathy and corresponds to the persistence of inflammatory processes in the myocardium. Eighty-two Chagas disease (CD) seropositive patients (64.6% females; age = 58.9 ± 9.9) without ischemic heart disease or conditions that cause myocardial fibrosis and dilation were considered. Late gadolinium enhancement (LGE) and T2-weighted magnetic resonance imaging of edema were obtained and represented using a 17-segment model. Patients were divided into three clinical groups according to the left ventricular (LV) ejection fraction (EF) as G1 (EF > 60%;  $n = 37$ ), G2 (35% > EF < 60%;  $n = 33$ ), and G3 (EF < 35%;  $n = 12$ ). Comparisons were performed by the Fisher or ANOVA tests. Bonferroni post hoc, Spearman correlation, and multiple correspondence analyses were also performed. Edema was observed in 8 (9.8%) patients; 2 (5.4%) of G1, 4 (12.1%) of G2, and 2 (16.7%) of G3. It was observed at the basal inferolateral segment in 7 (87.5%) cases. LGE was observed in 48 (58.5%) patients; 16 (43.2%) of G1, 21 (63.6%) of G2, and 11 (91.7%) of G3 ( $p < 0.05$ ). It was observed in the basal inferior/inferolateral/anterolateral segments in 35 (72.9%) patients and in the apical anterior/inferior/lateral and apex segments in 21 (43.7%), with midwall (85.4%;  $n = 41$ ), subendocardial (56.3%;  $n = 27$ ), subepicardial (54.2%;  $n = 26$ ), transmural (31.2%;  $n = 15$ ), and RV (1.2%;  $n = 1$ ) distribution. Subendocardial lesions were observed only in patients with LVEF < 35%. There was no involvement of the mid-inferolateral/anterolateral segments with an LVEF > 35% ( $p < 0.05$ ). Deteriorations of the LV and RV systolic functions were positively correlated ( $r_s = 0.69$ ;  $p < 0.05$ ) without evidence of LGE in the RV. Edema can be found in patients with chagasic cardiomyopathy in the chronic stage. In later stages of cardiac dilation with low LVEF, the LGE pattern involves subendocardium and mid locations. Deteriorations of RV and LV are positively correlated without evidence of fibrosis in the RV.