C-Reactive Protein Levels and Progression of Atrial Fibrosis Detected by DE-MRI in Patients with Atrial Fibrillation

ACC Poster Contributions
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Background: Correlation between atrial fibrillation (AF) and CRP has been established. We sought to compare the degree of left atrium (LA) disease based on the amount of fibrosis detected using delayed-enhancement MRI (DE-MRI) with C-reactive protein (CRP) levels as an indicator for reactive versus permanent fibrosis.

Methods and Results: 177 patients (109 male; 68.5±0.7 years old) underwent DE-MRI to quantify left atrial structural remodeling (SRM) as a marker for atrial fibrosis. Based on the degree of SRM patients were staged into 4 groups: Utah I (≤5% LA wall enhancement), Utah II (>5% to ≤20%), Utah III (>20% to ≤35%) and Utah IV (>35%) (Figure 1). CRP was measured 5±33 days to DE-MRI examination. Highest level of CRP was found in patients with Utah II (0.61±0.71 mg/dl). Course of CRP showed a significant increase from Utah I to Utah II (0.2±0.17 mg/dl vs. 0.61±0.71 mg/dl; p=0.021) and a decrease from Utah II to Utah III and to Utah IV (Figure 2). Levels of CRP were comparable in Utah I and Utah IV (0.2±0.17 vs. 0.43±0.53 mg/dl; p =0.338)

Conclusion: From our preliminary experience inflammation process is involved in the early stages of atrial structural remodeling in patients with AF as detected using DE-MRI.

Figure 1: The 4 different Utah Stages of left atrial fibrosis

Figure 2: Course of CRP in comparison to the Utah Stages of LA fibrosis