**CIRCULATING HEAT SHOCK PROTEIN 70 AND ANTI-HEAT SHOCK PROTEIN 70 ANTIBODIES IN ATRIAL FIBRILLATION**

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Background: Heat shock proteins (HSP) and anti-HSP antibodies have been associated with atrial fibrillation (AF) pathogenesis, although their mechanisms are not fully understood and their response to catheter ablation and association with rhythm outcome are unknown.

Methods: We studied 67 patients with AF (59±11 years, 66 % male, 66 % lone AF) undergoing catheter ablation. Circulating HSP70 and anti-HSP70 antibody levels were quantified using commercially available assays before and 6 months after catheter ablation. Serial 7-day Holter ECGs were used to detect AF recurrences.

Results: At baseline, HSP70 was detectable in 14 patients (21 %), but there was no correlation between clinical or echocardiographic variables and the presence or the level of HSP70. In contrast, patients with paroxysmal AF (n=39) showed lower anti-HSP70 antibodies (median 43, IQR 28 – 62 µg/ml) than patients with persistent AF (n=28; 53, 41 – 85 µg/ml, p=.035). Using multivariable regression analysis, AF type was the only variable associated with anti-HSP70 antibodies (Beta=.342, p=.008). At 6 months, HSP70 was present in 27 patients (41 %, p<.001 vs. baseline) with an overall increase (median 0, IQR 0 – 0 vs. 0, 0 – 0.09 ng/ml, p=.029). Similarly, there was an increase of anti-HSP70 antibodies (48, 36 – 72 vs. 57, 43 – 87 µg/ml, p<.001). AF recurrence rates were higher in patients with HSP70 increase ≥0.025 ng/ml (32 vs. 11 %, p=.038) or anti-HSP70 increase ≥2.5 µg/ml (26 vs. 4 %, p=.033).

Conclusion: HSP70 and anti-HSP70 antibodies may be involved in the progression of AF and AF recurrence after catheter ablation.