DECAAF: Delayed-Enhancement MRI (DE-MRI) Determinant of Successful Radiofrequency Catheter Ablation of Atrial Fibrillation

Analysis of post ablation scar and outcome

**Background:** Atrial tissue fibrosis (and remodeling) has been associated with atrial fibrillation. Several studies have demonstrated the value of delayed-enhanced (DE) MRI to quantify atrial fibrosis as a way of determining outcome after ablation (recurrence of atrial fibrillation). It has been shown that the larger atrial fibrosis burden the poorer the possibility of ablation success.

**Questions to answer:** Can catheter ablation success be predicted by the stage of LA fibrosis, and the amount and locations of scarring prior to ablation?

<table>
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<tr>
<th>Trial Design</th>
<th>Multi-center, observational cohort, prospective, study. Sample size n = 260. This is a 1-year study with follow-up at 3, 6 and 12 months post ablation.</th>
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<td>Primary Endpoint</td>
<td>Determine the relationship between the amount of pre-ablation fibrosis (scarring) and the recurrence atrial fibrillation post-ablation</td>
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| **Trial Results** | **Predictors of Outcome:**  
Stage of atrial fibrosis before ablation p<0.001  
• each % increase in fibrosis = 6.3% increased risk of symptom recurrence following ablation.  
Residual fibrosis after ablation p<0.001  
• each % increase in fibrosis = 8.2% increased risk of symptom recurrence following ablation. |

**Take Away:** De-MRI can inform us about the stage of the atrial fibrosis and the likelihood of success of ablation for AF when done before the procedure. Triage of patients by stage of atrial fibrosis is a strong outcome predictor. The amount of ablation of the fibrotic tissue, and not pulmonary vein ablation, was a predictor of outcome.

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