Bone morphogenetic protein 10 as a predictor for recurrent atrial fibrillation after catheter ablation

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Background: Atrial fibrillation (AF) recurrence after catheter ablation (CA) poses a major challenge. The novel atrial-specific biomarker, bone morphogenetic protein 10 (BMP10), might aid in the selection of appropriate patients for CA.
Purpose: We aimed to assess the predictive value BMP10 for AF recurrence after CA in a large cohort of AF patients.
Methods: We measured baseline BMP10 concentrations in AF patients who underwent elective CA for the first time. Patients were enrolled in a single-center prospective cohort study. The primary outcome variable was AF recurrence during 12 months' follow-up using 2 x 24h and 1 x at least 4-day Holter. We constructed Cox proportional hazard models to determine the association of BMP10 and AF recurrence. The multivariable model was adjusted for age, sex, body mass index, and cardiovascular risk factors.
Results: A total of 1,112 AF patients (74% male) with a mean age of 61 ± 10 years were included in our analysis (60% paroxysmal AF, 40% persistent AF). The 12-month follow-up examination revealed that AF recurred in 374 (33.6%) patients. Kaplan-Meier curves for recurrent AF according to BMP10 quartiles are shown in the Figure (BMP10 quartile I: 0.76-1.50 ng/mL, quartile II: 1.50-1.72 ng/mL, quartile III: 1.72-1.99 ng/mL, quartile IV: 1.99-3.75 ng/mL). In the unadjusted Cox proportional hazard model, a per-unit increase in log transformed BMP10 was associated with a hazard ratio (HR) of 2.28 (95% CI 1.43, 3.62; $p < 0.001$) for AF recurrence. After multivariable adjustment, the HR of BMP10 was 1.98 (95% CI 1.14; 3.42, $p = 0.01$) for AF recurrence.
Conclusion: The novel atrial-specific biomarker BMP10 was associated with AF recurrence after CA in our large cohort of AF patients.

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