Impact of non-pulmonary vein foci in the patients with atrial fibrillation: Clinical difference according to the localization of atrial fibrillation

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Introduction: There are some foci of atrial fibrillation (AF) resulting from outside of pulmonary vein (non-PV foci), however the clinical characteristics of non-PV foci are unknown.

Methods: For this retrospective observational study, we examined 2298 patients who underwent an initial catheter ablation for paroxysmal or persistent AF from January 2015 to December 2018 in our institution. We evaluated the localization of non-PV foci and the clinical difference in each AF focus.

Result: Non-PV foci were identified in 411 patients (17.8%). The localization of successfully ablated non-PV foci in 339/411 patients were the superior vena cava (SVC: 168 cases), interatrial septum (IAS: 95 cases), coronary sinus (CS: 69 cases), right atrium (RA: 97 cases) and left atrium (LA: 95 cases), and 72 cases with unmappable. An univariate analysis revealed that the patients with female, low body mass index (BMI), elderly were significantly associated with non-PV foci. Female was significant predictor of IAS, CS, LA and unmappable foci, elderly was only CS and LA foci, and low BMI was only SVC, IAS, RA and unmappable foci. After initial catheter ablation, AF with non-PV foci other than SVC were associated with AF recurrence.

Conclusion: Female, low BMI and elderly were significantly associated with non-PV foci. AF with non-PV foci other than SVC were associated with AF recurrence.