Recurrence Rate and Predictors of Electrophysiology Study Induced Atrial Fibrillation

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Introduction: When atrial fibrillation was induced during the electrophysiology study (EPS), the incidence of atrial fibrillation (AF) was higher, compared to when it was not induced. However the incidence rate and predictive factors were not well known. For more effective stroke prevention, it is important to know the predictive factors of AF recurrence.

Methods: From July 2010 to December 2018 at Samsung Medical Center, when AF was induced during the EPS, each patient was registered in the registry ‘AF during EPS’. 237 patients were assessed for eligibility and 35 patients were excluded. 10 patients had already been diagnosed with AF or AFL, and 25 patients were ineligible because they had been monitored for less than 3 days. Finally, 202 were enrolled for analysis. The primary outcome of the study included the recurrence of AF or AFL. Clinical and electrophysiology factors were investigated: Age, hypertension, CAD, duration of AF or AFL, isoproterenol usage during the EPS and corrected sinus node recovery time (CSNRT). Univariate and multivariate logistic regression analysis were performed to investigate the predictive factors.

Result: In this study, 19 of 202 (9.4%) patients developed documented AF or AFL. Mean follow-up duration of enrolled patients was 546±670 days. Older age, hypertension and CAD were associated with incidence of AF in univariate analysis. Two anticipated electrophysiology predictors show no statistical significance with the use of univariate logistic regression analysis: duration of AF or AFL, isoproterenol usage during the EPS and corrected sinus node recovery time (CSNRT). But induction of AF or AFL before isoproterenol infusion was a negative risk factor for recurrence of AF or AFL (odds ratio, 0.28; 95% CI, 0.08 to 0.94; P=0.04).

Conclusion: We observed that 9.4 percent of patients developed documented AF or AFL. It has been demonstrated that induction of AF or AFL before isoproterenol infusion was a negative risk factor for recurrence.