The relationship of atrial fibrillation and clinical features with prognosis in patients with acute decompensated heart failure

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**Introduction:** Atrial fibrillation (AF) is a predictor of poor prognosis in patients with acute decompensated heart failure (ADHF). However, little is known its impact of long-term prognosis and the subgroups related to a higher risk of poor prognosis.

**Methods:** We retrospectively analyzed the consecutive 1318 patients hospitalized for ADHF and discharged alive in the Kurashiki Congestive Heart Failure registry (with a median [IQR] age of 81 [72-87] years, and of whom, 587 [44.5%] were women). They divided them into two groups based on the presence of AF (AF group; n=639 and non-AF group; n=679). The clinical outcome measure is composite endpoint defines as cardiac death and HF hospitalization.

**Result:** During follow-up period [median 469 days], 362 events were occurred (cardiac death: n=110, HF hospitalization: n=311, both: n=59). The AF group had significantly higher age, female sex, prevalence of patients with previous HF hospitalization, stroke, dementia (AF group vs. non-AF group: 79.3 ± 11.0 vs. 77.1 ± 12.8, p=0.001, 48% vs. 42%, P=0.03, 29% vs. 16%, P=<0.001, 17% vs. 12%, P=0.023, 26% vs. 19%, P=0.003, respectively). The cumulative event rate was significantly higher in the AF group than in the non-AF group (p=0.004). After multivariate adjustment, the risk of clinical outcome measure was significantly higher in the AF group than in the non-AF group (hazard ratio [HR], 1.34; 95% confidence interval [CI], 1.11 to 1.71; p = 0.03). Subgroup analysis in AF group was performed to further stratify the risk. Cox proportional hazards model showed that renal dysfunction (estimated glomerular filtration rate <45ml/min/m2) (HR, 1.48; 95% CI, 1.07 to 2.03; p=0.017), hyponatremia (<135mEq/L) (HR, 1.77; 95% CI, 1.22 to 2.59; p=0.003), and the history of HF hospitalization (HR, 2.20; 95% CI, 1.63 to 2.96; p<0.001) , hypoalbuminemia (<3.5g/dL) (HR, 1.48; 95% CI, 1.08 to 2.04; p=0.015) were independent predictors of cardiac events.

**Conclusion:** AF is associated with worse prognosis in ADHF patients. Renal dysfunction and hyponatremia, and the history of HF hospitalization were independent predictors of cardiac death and HF hospitalization.