

Atrial Fibrillation is related with higher in-hospital mortality in acute myocardial infarction (AMI) patients from K-ACTIVE registry

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Background: The prognostic significance of atrial fibrillation (AF) on in-hospital mortality in acute myocardial infarction (AMI) patients is not fully understood in Japanese patients.

Methods: To elucidate the clinical significance of AF on in-hospital mortality in AMI patients, we analyzed the Japanese observational prospective multicenter registry of acute myocardial infarction (K-ACTIVE: Kanagawa ACuTe cardio Vascular rEgistry), which spans October 2016 to December 2019.

Results: A total of 3482 patients included 336 patients with AF and 3146 patients with sinus rhythm. Table 1 shows patient baseline characteristics. Patients with AF were significantly older than those with sinus rhythm (75 vs 67, $P < 0.0001$). Prevalence of hypertension and hemodialysis were significantly greater in patients with AF than patients with sinus rhythm while

prevalence of dyslipidemia and smoking were significantly less in patients with AF than patients with sinus rhythm. Table 2 shows characteristics of AMI. There were no significant difference in prevalence of STEMI, area of MI, Peak CK/CK-MB and prevalence of multivessel disease. However, patients with AF showed lower systolic blood pressure, faster heart rate, worse Killip category, greater prevalence of OHCA. Need of mechanical support including IABP/ECMO were greater in patients with AF than patients with sinus rhythm. In-hospital mortality was significantly higher in patients with AF than in patients with sinus rhythm (Figure, 10.4% versus 5.2%, $P = 0.0005$). This trend didn't change even after adjustment with age and sex (Odds ratio 1.6 95% confidence interval 1.1–2.4, $P = 0.02$).

Conclusion: AF was associated with higher in-hospital mortality in Japanese AMI patients.

Table 1

	AF	SR	P-value
Number	336	3146	
Male	77%	78%	0.78
Age	75 ± 11	67 ± 13	<0.0001
Hypertension	73%	65%	0.002
Diabetes	38%	33%	0.08
Dyslipidemia	49%	59%	0.001
Hemodialysis	5%	2%	0.002
Smoking (active)	21%	37%	<0.0001
LDL, mg/dl	107 ± 40	126 ± 41	<0.0001
HDL, mg/dl	50 ± 14	50 ± 16	0.69
HbA1c, %	6.3 ± 1.2%	6.3 ± 1.3%	0.91
Cre, mg/dl	1.4 ± 1.7	1.1 ± 1.2	<0.0001

AF, atrial fibrillation; SR sinus rhythm; LDL, Low density lipoprotein; HDL, High density lipoprotein; HbA1c, hemoglobin a1c; Cre, Creatine

Figure

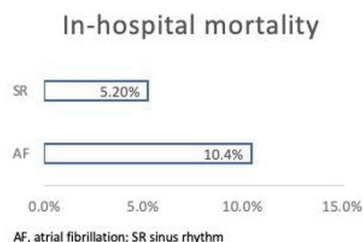


Table 2

	AF	SR	P-value
Type of AMI			0.50
STEMI	81%	82%	
NSTEMI	19%	18%	
Area of AMI			0.52
anterior	51%	54%	
inferior	35%	35%	
posterolateral	14%	11%	
Peak CK, IU/l	2727 ± 3485	2497 ± 2830	0.17
Peak CK-MB, IU/l	225 ± 261	211 ± 232	0.36
Multivessel	49%	48%	0.61
SBP, mmHg	130 ± 33	141 ± 32	<0.0001
HR	83 ± 29	79 ± 21	0.002
Killip			<0.0001
1	60%	80%	
2	12%	6%	
3	10%	6%	
4	18%	8%	
OHCA	8%	4%	0.003
IABP	24%	13%	<0.0001
ECMO	5%	3%	0.06
CABG	1%	1%	0.59

AF, atrial fibrillation; SR sinus rhythm; AMI, acute myocardial infarction; STEMI, ST-elevation myocardial infarction; NSTEMI, Non-ST-elevation myocardial infarction; CK, Creatine kinase; SBP, Systolic blood pressure; HR, heart rate; OHCA, out of hospital cardiac arrest; IABP, intra-aortic balloon pumping; ECMO, extra-corporeal membrane oxygenation; CABG, coronary artery bypass graft