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Arrhythmia burden during long-term follow-up in a large cohort of patients surviving out-of-hospital cardiac arrest

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Background: Data regarding incidence of ventricular (VA) and atrial arrhythmias (AA) in survivors after out-of-hospital cardiac arrest (OHCA) are scarce.

Purpose: To assess incidence of VA and AA in OHCA patients during long-term follow-up and to identify relevant predictive factors during the index hospital admission.

Methods: All consecutive patients admitted to the Acute Cardiac Care Unit after OHCA from August 2007 to January 2019 and surviving until hospital discharge were included. Cox proportional hazard models and logistic regression analysis were used to investigate clinical variables related to the incidence of VA and AA.

Results: The final analysis included 201 patients. Mean age was 57.6±14.2 years and 168 (83.6%) were male. The majority of patients experienced witnessed arrests related to shockable rhythms (176, 87.6%).

Thirty-six patients (17.9%) died after a median follow-up of 40.3 months (18.9–69.1), but only 4 presented another cardiac arrest. Eighteen patients (9.0%) suffered new VA and 37 (18.4%) developed atrial fibrillation/atrial flutter. History of coronary heart disease [HR 3.59 (1.37–9.42), p=0.010] and non-acute coronary syndrome-related arrhythmia [HR 5.17 (1.18–22.60), p=0.029] were independent predictors of VA during follow-up. The optimal predictive model for atrial arrhythmias included age at the time of OHCA, LVEF at hospital discharge and non-acute coronary syndrome-related arrhythmias (p<0.001).

Conclusions: Despite low incidence of recurrent cardiac arrest, OHCA survivors face a high incidence of VA and AA. Several clinical characteristics during index hospital admission may be useful to identify patients at high risk.

Table 1

Variable	Without VA	With VA	p value
Age, mean ± DS, years	57.4±14.2	60.8±14.7	0.336
Male sex, n (%)	150 (83.3)	15 (83.3)	1.000
Coronary heart disease, n (%)	36 (20.0)	11 (61.1)	<0.001
Cardiomyopathy, n (%)	27 (15.0)	8 (44.4)	0.006
Shockable rhythm, n (%)	157 (87.2)	16 (88.9)	1.000
ACS-related arrhythmia (Primary VF), n (%)	83 (46.1)	2 (11.1)	0.004
LVEF at hospital discharge (%)	47.5±13.9	38.3±16.5	0.010
Death during follow-up	32 (17.8)	3 (16.7)	0.603
Cardiac arrest during follow-up	2 (1.1)	2 (11.1)	0.042
CV hospital admission during follow-up	39 (21.7)	14 (77.8)	<0.001
Atrial arrhythmias during follow-up	28 (15.6)	9 (50.0)	<0.001

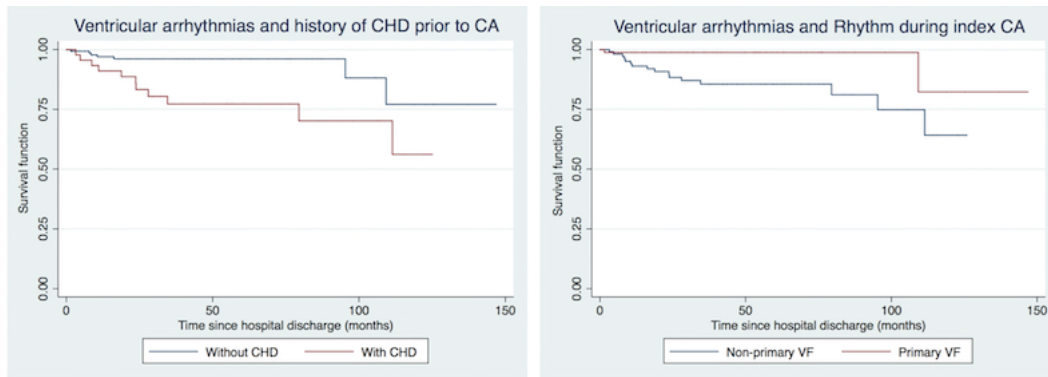


Figure 1