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Long-term follow-up in a large cohort of survivors after out-of-hospital cardiac arrest: global mortality and comparison with age-specific mortality rate in the general population

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Background: Data regarding long-term clinical outcomes after out-of-hospital cardiac arrest (OHCA) are scarce.

Purpose: To assess long-term mortality rate in OHCA patients, compare it with the general population age-specific mortality rate and identify relevant predictive factors.

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. All patients received targeted-temperature management according to our local protocol. Stepwise regression techniques and Cox proportional hazards models were used to investigate clinical variables related to long-term survival. The study population was divided into four quartiles according to their age and their mortality rate was compared with age-specific data from the Spanish National Statistics Institute.

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%).

Median time to ROSC was 18 (IQR 12–27) minutes and 14 patients (7.0%) were discharged in a poor neurological condition (CPC 3–4). Thirty-six patients (17.9%) died after a median follow-up of 40.3 months (18.9–69.1). A prognostic multivariate Cox model was developed and is shown in Table 1. Mortality was mainly driven by neurologic (33%), cardiovascular (30.6%) and oncologic (30.6%) causes. Annual mortality rate per 1000 patients was statistically superior to that in the general population among the first three age quartiles: 18.08 (6.78–48.16) vs 0.64; 29.62 (12.33–71.16) vs 3.30; 63.07 (33.94–117.22) vs 7.77. Nevertheless, no significant differences were observed among the oldest patients, ranging from 68.6 to 90.7 years: 70.93 (43.45–115.78) vs 54.95.

Conclusions: OHCA survivors face significant mortality during follow-up, and its long term prognostic impact may be higher among younger patients. Age at the time of CA, time from CA to CPR, non-shockable rhythm, poor LVEF and poor neurological condition at discharge are independent predictors of long term mortality.

Table 1. Cox proportional hazard model

Variable	Hazard Ratio	Std. Err.	p value	95% Confidence Interval
Time from CA to CPR (per minute)	1.06	0.03	0.06	1.00–1.13
Non-shockable rhythm	2.93	1.11	0.01	1.39–6.16
Poor LVEF at discharge (per %)	1.03	0.01	0.01	1.01–1.06
Age at time of CA (per year)	1.04	0.01	0.01	1.01–1.06
CPC 3–4 at hospital discharge	3.50	1.43	<0.01	1.58–7.78

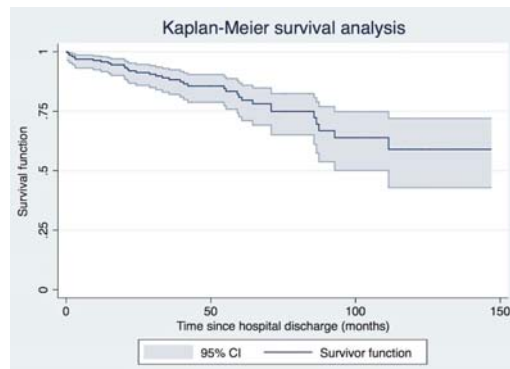


Figure 1