Supplementary material

Mortality Predictors and Neurological Outcomes Following Extracorporeal Cardiopulmonary Resuscitation (eCPR): A Single-Center Retrospective Study

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Table S1. STROBE Statement - Checklist of items that should be included in reports of cohort studies

No.	Item	Recommendation	Page
	Title and abstract		
1		(*a*) Indicate the study's design with a commonly used term in the title or the abstract	1
		(*b*) Provide in the abstract an informative and balanced summary of what was done and what was found	1
	Introduction		
2	Background/rationale	Explain the scientific background and rationale for the investigation being reported	1-2
3	Objectives	State specific objectives, including any prespecified hypotheses	1-2
	Methods		
4	Study design	Present key elements of study design early in the paper	2-3
5	Setting	Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	2-3
6	Participants	(*a*) Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up	2-3
		(*b*) For matched studies, give matching criteria and number of exposed and unexposed	2-3
7	Variables	Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	2-3
8*	Data sources/ measurement	For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	2-3
9	Bias	Describe any efforts to address potential sources of bias	2-3
10	Study size	Explain how the study size was arrived at	NA
11	Quantitative variables	Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	2-3
12	Statistical methods	(*a*) Describe all statistical methods, including those used to control for confounding	2-3
		(*b*) Describe any methods used to examine subgroups and interactions	2-3
		(*c*) Explain how missing data were addressed	2-3
		(*d*) If applicable, explain how loss to follow-up was addressed	NA
		(*e*) Describe any sensitivity analyses	NA
	Results		
13*	Participants	(a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed	3-8
		(b) Give reasons for non-participation at each stage	3-4
		(c) Consider use of a flow diagram	NA
14*	Descriptive data	(a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders	Table 1
		(b) Indicate number of participants with missing data for each variable of interest	Tables
		(c) Summarise follow-up time (eg, average and total amount)	Tables
15*	Outcome data	Report numbers of outcome events or summary measures over time	Tables
16	Main results	(*a*) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included	Tables
		(*b*) Report category boundaries when continuous variables were categorized	Tables
		(*c*) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	NA
17	Other analyses	Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses	3-8
	Discussion		
18	Key results	Summarise key results with reference to study objectives	8-10
19	Limitations	Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	10-11
20	Interpretation	Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	10-11
21	Generalisability	Discuss the generalisability (external validity) of the study results	10-11
	Other information		
22	Funding	Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	10-11

*Give information separately for exposed and unexposed groups.

Table S2. Serial measurements of arterial blood gas (after ECMO initiation)

	All patients (n = 90)	Survivors (n = 41)	Non-survivors (n = 49)	p-value	Missing data (n/total)
Serial arterial pH measurements					
1h	7.230 (6.700-7.428)	7.261 (6.923-7.428)	7.200 (6.700-7.420)	0.056	23/90
2h	7.277 (6.800-7.588)	7.308 (7.054-7.588)	7.249 (6.800-7.509)	0.007	12/90
6h	7.362 (7.121-7.597)	7.401 (7.172-7.597)	7.323 (7.121-7.487)	0.001	13/90
12h	7.401 (7.161-7.596)	7.402 (7.199-7.596)	7.380 (7.161-7.530)	0.235	19/90
18h	7.401 (7.081-7.638)	7.410 (7.270-7.638)	7.381 (7.081-7.540)	0.134	24/90
24h	7.393 (7.195-7.542)	7.404 (7.203-7.517)	7.370 (7.195-7.542)	0.174	26/90
48h	7.429 (7.255-7.611)	7.425 (7.255-7.611)	7.451 (7.287-7.589)	0.828	40/90
Serial lactate levels measurements					
1h	104 (9-214)	85 (9-192)	112 (22-214)	0.001	24/90
2h	94 (7-228)	65 (7-163)	112 (19-228)	<0.001	11/90
6h	60 (8-197)	37 (8-116)	77 (16-197)	<0.001	13/90
12h	38 (3-179)	26 (3-109)	54 (12-179)	0.003	19/90
18h	23 (5-139)	19 (5-90)	41 (10-139)	<0.001	24/90
24h	19 (5-119)	15 (5-51)	27 (10-119)	<0.001	26/90
48h	17 (4-65)	13 (4-32)	23 (11-65)	0.002	40/90

Values are presented as mean ± SD and median (minimum - maximum). ECMO: extracorporeal membrane oxygenation.

Figure S1. Kaplan-Meier mean estimate of overall ICU mortality in regard of initial rhythm: 25 days for non-shockable (n = 50; 95% CI 17.9-32.9), and 38 days for shockable rhythm (n = 40; 95% CI 29.4-46.2), p = 0.044. Abbreviations: eCPR, extracorporeal cardiopulmonary reanimation.

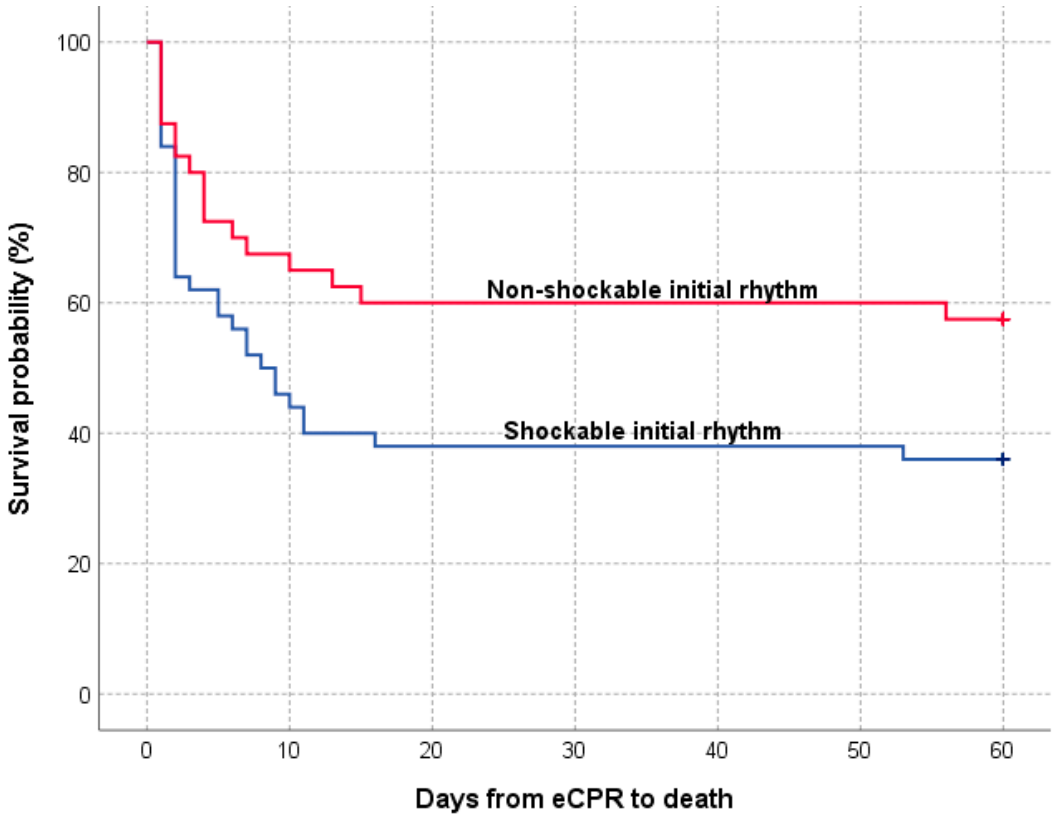


Table S3. Univariate analyses: Identification of risk factors and predictors for ICU-mortality (n = 90)

				95% confidence interval	
Nondependent variable	**B-coefficient**	**P value**	**HR**	**lower**	**upper**
Age (years)	-0.004	0.612	1.00	0.98	1.01
Sex (male/female)	0.223	0.447	1.05	0.70	2.22
BMI (kg/m^2)	-0.013	0.680	0.99	0.93	1.05
Witnessed cardiac arrest	-1.287	<0.001	0.28	0.15	0.52
CPR duration (minutes)	0.007	0.005	1.01	1.00	1.01
Peripheral ECMO cannulation	0.531	0.463	1.70	0.41	7.02
Day of cardiac arrest (weekend)	0.726	0.014	2.07	1.16	3.68
Cardiac arrest aetiology (reference category: Myocardial infarction)					
Heart valve intervention	-0.155	0.755	0.86	0.32	2.26
Hypothermia	0.769	0.033	2.16	1.06	4.38
Cardiomyopathy	-0.058	0.925	0.94	0.28	3.16
Other (cardiac aetiology)	-1.387	0.175	0.25	0.03	1.85
Pulmonary embolism	0.783	0.206	2.19	0.65	7.36
Other primary non-cardiac	-0.656	0.287	0.52	0.16	1.74
Initial rhythm					
Initial rhythm (non-shockable initial rhythm)	-0.575	0.056	0.56	0.31	1.02
Initial rhythm (reference category: ventricular fibrillation)					
Pulseless electrical activity	0.913	0.009	2.49	1.25	4.96
Asystole	0.131	0.716	1.14	0.56	2.31
Pulseless ventricular tachycardia	-1.092	0.290	0.34	0.04	2.53
Location of cardiac arrest (reference category: In-hospital)					
Out-of-hospital	1.036	<0.001	2.82	1.58	5.02
Retrieved from another centre on ECMO	-1.175	0.249	0.31	0.04	2.28
Complications					
Haemorrhage	0.195	0.496	1.22	0.69	2.14
Major Haemorrhage	0.411	0.005	1.51	1.13	2.01
Minor Haemorrhage	-0.788	0.054	0.46	0.20	1.01
Intracranial bleeding	0.416	0.309	1.52	0.68	3.38
Extremity ischemia	-0.182	0.656	0.83	0.37	1.86
Compartment syndrome	0.539	0.217	1.71	0.73	4.04
Thrombosis	0.094	0.819	1.10	0.49	2.45
Acute kidney injury during ECMO support	-0.173	0.549	0.84	0.48	1.48
Continuous renal replacement therapy during ECMO	-0.348	0.229	0.71	0.40	1.25
Blood gas parameters before ECMO initiation					
Arterial pH before ECMO	-1.993	0.006	0.14	0.03	0.56
Venous pH before ECMO	-0.869	0.637	0.42	0.01	15.56
Lactate (mg/dL) before ECMO	0.008	0.003	1.01	1.00	1.01
Potassium (mmol/L) before ECMO	0.105	0.243	1.11	0.93	1.32
Glucose (mg/dL)	0.002	0.194	1.00	1.00	1.00
Blood gas parameters after ECMO initiation					
Arterial pH directly after ECMO initiation	-2.798	<0.001	0.06	0.02	0.25
Lactate directly after ECMO initiation (mg/dL)	0.012	<0.001	1.01	1.01	1.02
Arterial pH at 30min	-2.778	0.001	0.06	0.01	0.30
Lactate at 30min (mg/dL)	0.012	<0.001	1.01	1.01	1.02
Potassium at 30min (mmol/L)	0.015	0.901	1.02	0.80	1.29
Glucose at 30min (mg/dL)	0.002	0.149	1.00	1.00	1.01

ICU: intensive care unit; ECMO: extracorporeal membrane oxygenation; CPR: cardiopulmonary resuscitation