



EDITORIAL COMMENT

Cardiac arrest: It is important not just to survive, but to survive with at least an acceptable quality of life

Paragem cardíaca: é importante não apenas sobreviver, mas sobreviver com o mínimo de qualidade de vida considerada aceitável

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Mortality and morbidity after cardiac arrest (CA) remain very high. Survival rates at hospital discharge vary considerably between studies and regions, but major European studies report survival of 15–34% for in-hospital CA (IHCA)¹ and 8% for out-of-hospital CA (OHCA), with 26.4% survival for those admitted to hospital.²

Survival rates after OHCA are highly dependent on the quality of the local chain of survival, which includes rates of bystander basic life support, quality of emergency medical services, time to first defibrillation, quality of advanced life support, and post-resuscitation care.³ On the other hand, most patients who suffer IHCA will show signs of clinical deterioration in the hours preceding the event. While the quality of the chain of survival in IHCA is also important, recognizing those at risk of CA and timely initiation of appropriate therapeutic interventions is of the utmost importance for preventing it.

But the endpoint cannot be just to survive. It is important to survive with at least an acceptable quality of life. There are many studies on survival, but very few explore functional outcomes after CA.

Functional sequelae from CA are in part determined by the patient's underlying health status and arrest-specific factors, but many aspects of medical care can influence outcomes. The overall prevalence of good outcome (defined primarily by the Cerebral Performance Category [CPC] score⁴) can range between 11% and 63% in different centers. This variability is partially explained by in-hospital treatment decisions, particularly regarding post-resuscitation care, in which many measures are associated with outcome, such as targeted temperature management, glucose control, oxygenation and ventilation techniques, blood pressure management, use of mechanical circulatory support, sedation regimes, and the application of multiple neuroprognostication methods. The latter include modalities such as neuroimaging, continuous electroencephalography, biomarkers, and monitoring of somatosensory evoked potential, along with the routine practice of withdrawal of life-sustaining treatment.

In Portugal, data on post-resuscitation outcomes are scarce, but it is essential to understand the situation in the country and the main reasons for it, in order to take action to improve patients' prognosis.

In this context, Pratas et al.⁵ designed a retrospective single-center study, published in this issue of the *Journal*, that included 97 patients admitted to the intensive care unit of Cova da Beira University Hospital Center after CA (67%

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IHCA) between 2015 and 2019, to analyze the survival curve, independence, quality of life, and performance status after CA. A survey assessing quality of life, based on the validated EuroQoL EQ-5D-3L questionnaire and the Eastern Cooperative Oncology Group (ECOG) performance status scale, was administered. Unlike the CPC score, these tools assess not just neurologic performance, but also the ability to perform activities of daily living (ADL).

Very interesting results were obtained. The overall survival to hospital discharge rate was 32.0%, which is similar to other Portuguese studies.⁶ The quantitative variables with a significant role in survival to discharge were age and admission severity scores. One year after CA, only 20.6% were alive and only 13.4% (65% of the one-year survivors) were independent, a lower percentage than previously published,⁷ but this is difficult to interpret due to the heterogeneity between samples. Variables that had a significant impact on one-year survival after discharge were depression, length of hospital stay (LOHS), dependence for ADL and being in long-term health care facilities after CA.

Fifty percent of previously independent patients became dependent, and 47.4% of those previously at home were admitted to long-term care facilities. Diabetes, age and LOHS were major factors in loss of independence. Only 12 patients were eligible for application of the questionnaire, of whom nine actually responded (three contact attempts failed). Surprisingly, mean EQ-5D quality of life index (0.528 ± 0.297) and the most affected domains ('Pain/discomfort' and 'Anxiety/depression') were similar to the overall Portuguese population aged >30 years, based on data published 10 years ago.⁸ Seven patients (78%) had a good performance status (ECOG score 0–1), but most (66.7%) reported lower quality of life after CA and only two (22.2%) were fully active without restriction. Due to the retrospective nature of the study (with missing data) and the small sample, the authors were unable to correlate data from the CA event and the post-CA period, including data derived from multimodal neuroprognostication, with subsequent quality of life and performance status.

In conclusion, overall survival from CA, although improving, remains low. Among survivors, there was a significant level of dependence after CA and a decline in quality of life. These data are in line with previous publications.⁹ Although some studies report good outcomes after CA when using standard scores such as CPC,⁴ survivors do report a deterioration in quality of life.¹⁰

There is much to do, right now. Unfortunately, at present there is no risk-adjustment standard for benchmarking hospital performance. Prospective controlled studies in resuscitation are needed. This requires collaboration across

multiple sites, thorough organization and careful ethical consideration. In the meantime, it is essential to make a common effort to improve all links of the chain of survival, from identification of CA to the post-resuscitation care period and recovery, with well-designed multidisciplinary rehabilitation plans and facilities, so that survival with at least an acceptable quality of life can improve.

Conflicts of interest

The author has no conflicts of interest to declare.

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