

On the quality of reporting quality of life after extracorporeal life support

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Dear editor:

With great interest we read the recent study by de Vlugt et al. investigating the effect of extracorporeal life support (ECLS) on 3-months quality of life and neuropsychological symptoms. There were no major differences observed between ECLS supported patients versus matched non-ECLS patients admitted to the intensive care unit (ICU).¹ These findings suggest that the long-term sequelae of ECLS treatment are limited. Despite the importance of the topic,² we feel that there are some relevant methodological issues that should be considered when interpreting the results.

The small number of patients (19 ECLS vs 38 non-ECLS) limit the reliability of results, as it renders the study underpowered to detect clinically meaningful differences in patient-centered outcomes. In addition, as the analyzed cases represented a highly-particulate subgroup of 19 (27%) patients for whom outcome data were available (selected from a total of 70 ECLS survivors), a high concern for observation bias arises. For example, individuals in a poor health state are well known to participate less frequently in surveys.³ Such effects could have led to an underestimation of poor quality of life and neuropsychological outcomes in this study. In addition, several patient characteristics including female gender, higher socioeconomic status and increasing age were described to increase response rates of EQ5D questionnaires in literature.⁴ To objectively evaluate the potential for bias, it is important to compare the response rates of ECLS patients to those of the matched ICU patients. However, we were not able to find information about completeness of questionnaires in the control group. Also, potential differences between responders and non-responders were not reported.

Another point of concern is related to the high likelihood for residual confounding. Matching only occurred on diagnosis group. Of note, Sequential Organ Failure Assessment (SOFA) and Acute Physiology And Chronic Health Evaluation (APACHE) IV scores both do not take into account the time-dependent confounding that occurs due to evolution of disease severity

later during the ICU stay. Indeed, important differences between ECLS patients and the matched ICU group were observed in ICU length of stay and duration of mechanical ventilation. As a prolonged ICU admission is very well known to be associated with decreased quality of life,⁵ and also associated with the exposure, this causes residual confounding and therefore risk of bias of the results.

Additionally, quality of life after discharge from the ICU is a dynamic process and research shows that the outcomes studied tend to improve in patients over time.⁶ A later time-point (i.e. 12 months post discharge) might have been more appropriate as patients have progressed in their rehabilitation process, providing more final estimates of the outcomes after recovering from the ICU stay.

We share the authors' enthusiasm for long-term follow-up of ECLS patients, yet believe this study was severely hampered by low enrolment and poor response rates. Studies seeking greater patient recruitment and higher response rates are therefore warranted to further our understanding of long-term ECLS outcomes.

Declaration of conflicting interests

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