Letters to the Editor

More evidence is required before we alter guidance on prognostication following cardiac arrest

Dear Sir,

We read with interest the excellent and thought provoking paper written by Rittenberger and colleagues.1

Our unit treats approximately 80 post cardiac arrest patients per year with rates of good neurological outcome approaching 50%. We have until reading this paper followed the guidance of the American academy of neurology and the UK Intensive Care Society with regard to prognostication following cardiac arrest. This paper clearly challenges the guidance that the use of clinical examination at 72 h can allow prognostication with nearly 100% accuracy, facilitating withdrawal of therapy compliant with ethical guidance.

This paper suggests a modification to the current recommended approach to prognostication, for example providing full intensive care to patients with a GCS motor score <3 for prolonged period-spast cardiac arrest with no end point for when we can safely assess likely prognostic outcome. This is likely to lead to an increase in the number of survivors with a poor functional status so the evidence to make such a change must be robust.

We have three concerns related to the methodology described in the paper that may influence that.

1. The sedative regime is described as mostly diprivan (propofol), which was stopped for 20 or 30 min. More information is required on the length of time the infusion had been running and how long it had been stopped for and what other sedative drugs had been administered prior to examination. Propofol by infusion has a context sensitive half time of 40 min and patients who survived with apparently poor motor scores may simply have been anaesthetised at the time of assessment.

2. Our reading of the paper suggests that there were only 3 patients who had a motor score of less than 2 who went on to have a good neurological outcome. Further information is required on these patients in order to be certain that the examinations and circumstances of the cardiac arrest made them suitable for inclusion in this paper. In addition the formatting of these tables makes them difficult to read.

3. The use of discharge destination to approximate CPC has been used historically. In the United Kingdom there is an increasing ability to manage severely disabled patients in a home environment. This represents a great advance for patients but means that discharge destination no longer equates to a good CPC.

Whilst this article adds greatly to the literature, this is an area of great legal and ethical controversy. Changing guidelines in haste may lead to an increased number of patients in a persistent vegetative state with the associated financial and emotional burden this entails.

Further trials are urgently required in order to obtain international consensus on this important issue. Once again we thank the authors for bringing this to the forefront of literature.

Conflict of interest statement

I can confirm all authors have no conflicts of interest.

References


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Reply to Letter: More evidence is required before we alter guidance on prognostication following cardiac arrest

Sir,

We appreciate the comments from our colleagues and agree that changing existing guidelines will require clinical trial data.

We are unable to provide hourly dosing of medications for all subjects. Our protocol for daily cessation of sedation is for at least 15 min and up to an hour unless the patient does not tolerate (agitation, respirations > 30, SpO2 < 90%, elevated airway pressures, or hemodynamic instability). During hypothermia, sedation is titrated to suppress shivering, and afterward sedation is titrated to a Ramsay Sedation Scale of 3–4.

More detailed discussion of the three subjects with GCS Motor ≤ 2 at 72 h and later having a good outcome is below.
Subject 1 was a 55-year-old male experiencing a VF/VT OHCA. He was treated with therapeutic hypothermia. On post-arrest day (PAD) 3, he was examined by the neurology attending after cessation of fentanyl/propofol for approximately 20 min. No response to pain in the extremities was noted, but with sternal rub there was nonpurposeful foot movement. On PAD 6, the subject was re-examined after cessation of propofol for 30 min and fentanyl for 4 h. He grimaced to pain and withdrew his extremities. He awoke and followed commands on PAD 8. He was discharged to acute inpatient rehabilitation on day 27 with a CPC of 3 and MRS of 4 on chart review. He returned to home on PAD 39 and remains alive.

Subject 2 was a 25-year-old male with an unwitnessed asystolic OHCA. The toxicology screen was negative, but he later admitted to valproic acid overdose. After resuscitation, he suffered intestinal ischemia necessitating operative intervention on PAD 2 and 3. He was examined with cessation of propofol and fentanyl, but may have had acidosis clouding the examination. He was discharged to acute rehabilitation on PAD 29 with a chart review CPC 3 and MRS 4. He remains alive.

Subject 3 was a 61-year-old male with acute pulmonary edema and PEA arrest. His post-arrest course was complicated by acute renal failure requiring continuous veno-venous hemodialysis. In the morning prior to his 72-h examination, the dose of propofol was being decreased and was stopped for his examination. However, renal failure and acidosis may have clouded this examination. He was discharged to an acute rehabilitation facility out of state on PAD 10 with a chart review CPC 3 and MRS 4. He remains alive.

Our results are similar to other recent works.1-3 In a cohort of 37 adults receiving therapeutic hypothermia, two awoke after a motor response of no better than extension at day 3. One subject died later in the hospital and the other had a Glasgow Outcome Score of 3 at 3-month follow up. Multicenter trials to evaluate the prognostic utility of the clinical exam in the hypothermia era are needed.

Finally, our colleagues make an excellent point regarding the inaccuracies of using discharge disposition as a surrogate for CPC or MRS. These data are outlined above and in a recent work.4 An outcome measure tailored to the post-cardiac arrest population is urgently needed.

Sincerely,

Conflict of interest statement

No conflicts of interest to declare.

References


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