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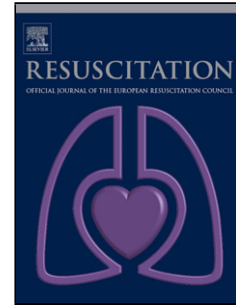
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In search of a needle

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If you can look into the seeds of time, and say which grain will grow and which will not, speak then unto me. William Shakespeare, Macbeth

Neurologic injury is common in the resuscitated cardiac arrest patient. [1] A multimodal prognostication algorithm is recommended, but details on long-term outcomes in those who remain comatose following such a workup are limited. [1] The need to determine those who may wake at a later date and thus have a chance at functional recovery represents the proverbial needle in the haystack. In this edition of *Resuscitation*, Petzinka *et al* report on 63 patients resuscitated from cardiac arrest and discharged from the hospital with either unresponsive wakefulness syndrome or coma. [2] Follow up was completed at a median of 81 months after hospital discharge. These data are novel as the authors used a standardized form to evaluate outcome, and long term outcome studies have generally focused on subjects who are wakeful at hospital discharge. In one prior wakeful cohort, functional outcomes continue to improve, but individuals can require up to a year to reintegrate into their communities. [3]

The authors demonstrate that the majority (97%) of patients with poor neurologic outcome at hospital discharge continue to have poor neurologic outcome years following discharge. This echoes the seminal work of Levy who evaluated 210 patients resuscitated from cardiac arrest and followed them for up to one year afterward. [4] The last clinical examination recorded in the Levy study was 2 weeks after cardiac arrest. In those who: 1) were not obeying commands, 2) did not have spontaneous eye opening, or 3) had not improved their eye examination by at least two grades over the two weeks, all remained in a vegetative state at one year. While the Petzinka cohort report a less detailed final neurologic examination, subjects in the study received therapeutic hypothermia, remained a median of 27 days in the ICU, and had access to advanced prognostication tools such as SSEP, MRI or EEG. Taken together, these cohorts suggest that few patients who are not following commands at 2 weeks after cardiac arrest will recover neurologic function in the future.

The authors kindly provide more texture regarding the two patients who did regain consciousness. The first patient experienced an out-of-hospital, asystolic cardiac arrest with a 75 minute resuscitation time. Her NSE was elevated at 449 μ g/L, CT of the brain demonstrated cerebral edema, and EEG demonstrated periodic epileptiform discharges on a continuous but unreactive background. She later awoke but experienced tetraparesis, dysarthria, dysphagia (requiring gastrostomy tube), symptomatic epilepsy, and required constant care. She experienced some degree of neurologic recovery but not functional recovery. The second

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