

Neurological Outcomes: The CPC Score

The “Clinical Performance Score” was initially proposed by Jennett and Bond in Lancet in 1975 as a way of evaluating the outcomes of brain injury, mainly from head trauma. With no prior evaluation tool available against which to assess its validity and reliability, Safar proposed the use of this 5-point scale in 1981 as a means by which to judge neurological survival in studies of cardiac arrest.[1] Since that time, it has been used to determine the neurological status of patients undergoing hypothermia after cardiac arrest, notably in Bernard et al[2] and in the HACA study[3]. The HACA study, for example, defined a “favorable neurological outcome” as a score of 1 (conscious, alert, able to work, might have mild neurological or psychological deficit) or 2 (conscious, sufficient cerebral function for independent activities of daily life) Despite its face validity, however, studies by Roine et al[4] and Hsu et al[5] have demonstrated that there is a low correlation between a score of “2” and functional abilities as measured on a well-standardized scale from critical care, and that nearly half of individuals with a “1” actually have moderate to severe cognitive handicaps. It is not sufficient to argue that anything but placement in a long-term care facility constitutes good neurological survival. Although patients suffering cardiac arrest tend to be older, the recently published Public Access Defibrillation Trial in 2004 showed that more than one-third of those who were treated by EMS were under the age of 65.[6] The implication of such a large number of individuals still within the working population is that persons can be classified as totally and permanently disabled from any gainful employment according to Social Security law, and still be living at home. In addition, like patients after myocardial infarction, there is a significant number of cardiac-arrest survivors who suffer from depression and anxiety [7], even one year after the event. [8]

The major problem with the CPC is that the categories are subjective, relying on an intuitive assessment by investigators without any empirical basis for their judgment or the boundaries between categories. Physical neurological status is much more precisely assessed by an instrument such as the NIH Stroke Scale. Neurocognitive outcomes can be ascertained with easily administered instruments that measure important functions such as mental status, language, attention, memory and decision-making. Such measures are currently being used in device studies in other cardiovascular conditions, including permanent circulatory support for end-stage heart failure in patients of comparable age as those with cardiac arrest.[9] Such test batteries both increase the sensitivity of study outcome measurement and maximize assessment decisions on a standardized basis.

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