



## ARTICLE OF THE MONTH

### The Monitoring and Management of Severe Traumatic Brain Injury in the United Kingdom: Is there a Consensus?: A National Survey

[Wijayatilake DS<sup>1</sup>](#), [Talati C](#), [Panchatsharam S](#).

[J Neurosurg Anesthesiol.](#) 2015 Jul;27(3):241-5. doi: 10.1097/ANA.000000000000143.

This August installment of the SNACC Article of the Month deals with an article which recently appeared in JNA. The topic is thought-provoking, if not controversial, and deals with what neurointensivists in the UK view as consensus ideas for the management of TBI. What we see, and what Dr. Kofke (our expert of the month) points out, is that consensus in this regard is indeed very hard to come by. Furthermore, achieving consensus on even some of the basic aspects of TBI management (for instance, determining CPP) still eludes us. Dr. Kofke, the President-Elect of SNACC and a well-known neurointensivist in the USA, discusses why consensus on TBI management, both here and abroad, is elusive, and how we might (or might not) work towards it one day. Please enjoy this month's article, the expert commentary by Dr. Kofke, and chime in on the [SNACC LinkedIn Feed](#).

~John F. Bebawy, MD

### Commentary

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This paper summarizes the results of a national UK survey to ascertain the extent of variation in approaches to the management of traumatic brain injury in the UK. The results, probably not surprising, are that there is little consensus across hospitals in the approach to TBI. I say it is not surprising based on my own clinical observations in various units but also the problems that practice variation brings to efforts to do prospective randomized trials. This was aptly documented by Clifton after the first negative study on hypothermia in TBI. I have expressed concern about this as one important issue in an editorial regarding the many negative neuroprotection studies in stroke.

The lack of consensus can most likely be ascribed to the lack of data. However, as I and others have described, obtaining good outcome based evidence has major obstacles. Funding is of course an issue as such studies require thousands of patients over many sites. Secondly, given that the disease is multifactorial with the many

factors weights varying over time post TBI, assessing one therapy in this pathophysiological forest is very unlikely to yield a positive result. And thirdly, evaluating a monitor, which is much of what is discussed, requires a willingness to compare no monitor vs using a monitor, or placing the monitor and not reacting to the results. There has been an attempt to carefully evaluate what data there is in the NCS consensus statement but it offers few recommendations with high grade evidence.

Another factor in the poor consensus is the innate, and appropriate, practice of physicians everywhere to first do no harm. Given that the unusual intracranial bleeding complication of invasive monitors constitutes harm, that is also likely contributing to practice variation. Development of noninvasive monitors, which are under development in several centers, should actually increase consensus and ample benefit may then be forthcoming without material harm.

Even the approach to calculating CPP has wide variation. Kosty et al did a US survey of UCNS approved neuro ICUs observing significant variation in the approach to measuring this fundamental element of TBI management. Some put the BP transducer at the level of the head and others at the level of the heart. Indeed wide variation is evident in the foundational literature upon which TBI protocols are based. Calculating CPP based on a heart level blood pressure, depending on patient height and the angle of head of bed elevation, introduces more than 10mmHg error. So you think the CPP is on target at 60mmHg but in real life it is more like 45mmHg. Also a notable observation in that report is that different individuals in the same unit sometimes gave different reports on their practice, underlining a constant problem in surveys of practitioners about clinical practice.

The authors suggest that a consensus conference is needed. Well, that would be great but it would again be building the house on sand as the evidence is not solid. I am not sure it will ever be developed unless innovative methods of doing clinical research are devised. Many of these issues were aptly identified by Penston, who suggests that Bayesian methods will be the future of clinical research. Perhaps then we will get answers we can all agree on.