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S. M. Brolliar, M. Moore, H. J. Thompson, L. K. Whiteside, R. B. Mink, M. S. Wainwright, *et al*. A qualitative study exploring factors associated with provider adherence to severe paediatric traumatic brain injury guidelines. J Neurotrauma. 2016 Jan 13.

Adherence to paediatric traumatic brain injury (TBI) guidelines[1] results in a documented improvement in patient outcomes,[2] but there are differential rates of adherence. It has been demonstrated in literature that adherence to paediatric TBI guideline during the first 72 h post-admission has been associated with better survival and better discharge scores.[2] Neither the initial guidelines of paediatric TBI nor the 2012 revision have addressed the implementation and adherence issues. This study was conducted to identify the provider perspective on factors associated with adherence to the guidelines using 19 focus groups with nurses and physicians at five university-affiliated level 1 trauma centres across the United States. Physicians and nurses (e.g., providers) were recruited as a part of the protocol involving multiple subspecialities. Interviews which included open-ended questions mostly aimed at eliciting perspectives on facilitators and barriers to successful adoption of the guidelines, as well as organisational factors and local characteristics that impacted adherence to the guidelines and potential solutions to problems identified. On the basis of both deductive and inductive content analysis, three interrelated domains were formulated. Those are (1) perceived guideline credibility and applicability to individual patients, (2) implementation, dissemination, and enforcement strategies, and (3) provider culture, communication styles, and attitudes towards protocols. The results were built on existing knowledge related to guideline implementation and adherence strategies in critical care.[3] Previous studies have shown that physicians' and nurses' decisions to use evidence-based clinical practice guidelines are broadly influenced by their knowledge and attitudes about guidelines, local professional norms and institutional factors.[4-7] This particular study is unique in the applicability of interdisciplinary dynamism and addressing their needs for acute management of paediatric TBI. Adherence to the guidelines is increased when the providers are sufficiently skilled in the content and have the belief in its ability to result in good outcome.[4,5,7,8] Two different terms applicability and adherence are important from the different provider perspective. It is the physician who decides the guideline applicability to a particular patient, but adherence is influenced by the nursing staffs. The roles of institutes are crucial in guideline applicability and adherence by devising a method to endorse, codify, and implement the guidelines into the local culture. Adherence was determined by the interaction of each of this guideline, institutional and provider factors acting in concert. Incorporating provider perspectives on barriers and facilitators to adherence into hospital and team protocols is an important step towards improving adherence and ultimately patient outcomes.

The authors addressed few limitations. First, the study results obtained from a small number of paediatric trauma centres. However, the total number of participants was large. Second, providers with strong opinions regarding barriers and facilitators to guideline adherence may have been more willing to participate in the focus groups. There is a possibility of recall bias as study data are based on provider recall and disclosure of events taking place at their worksite. The authors concluded that the human factors, organisational cultures and institutional structures are the real barriers to guideline adherence but not physical or financial constraints. Whereas the facilitators are included transparent, high functioning teams of providers and the institutional policies that allow them to flourish. Finally creating a culture of collaboration, delivering standardised paediatric TBI care, and open communication while considering local barriers and facilitators between treatment teams and among providers may facilitate guideline adherence.

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D. Gupta, D. Sharma, N. Kannan, S. Prapruettham, C. Mock, J. Wang, *et al*. Guideline adherence and outcomes in severe adult traumatic brain injury for the CHIRAG (Collaborative Head InjuRy and Guidelines) study. World Neurosurg. 2016.

The increase in number of traumatic brain injury (TBI) has been astounding in recent times mostly attributed to road traffic accidents.[1,2] According to the global burden of disease study 2013, deaths from injury worldwide increased by 10·7% from 4.3 million deaths in 1990 to 4.8 million in 2013.[3] Ultimately, it increases the socioeconomic burden in a nation.[1,2] To improve the outcome from TBI in 2007 brain trauma foundation[4] had formulated guidelines, but in true sense, the implementation and adherence to the guidelines is always a key to improved outcome following TBI. No study till date has assessed the rates of adherence and the impact of adherence on outcome following TBI. The authors conducted this bi-institutional Indo-US collaborative project to investigate Intensive Care Unit (ICU) TBI guideline adherence rates and to analyse the relationship between ICU guideline adherence and in-patient mortality outcomes, and long-term outcomes as well in severe adult TBI at tertiary level institutions in India (Jai Prakash Narayan Apex Trauma Center [JPNATC], New Delhi, India), and the United States (Harborview Medical Center [HMC], Seattle, WA, USA). The authors hypothesise stern ICU guideline adherence would be associated with lower in-patient mortality after severe TBI. The study design used was a retrospective analysis from 2009 to 2011 at HMC, whereas it was a prospective analysis from 2012 to 2014 at JPNATC. They included participants older than 18 years with a diagnosis of severe TBI characterised by an abbreviated injury severity of >3, post-resuscitation Glasgow Coma Scale <8, alive with tracheal tube >48 h since admission, history of trauma and abnormal computed tomography of head. Authors excluded patients who died within 48 h of admission as per their belief that a minimum of 48 h of window is the necessary period for the patients to be acquainted with adherence to guidelines so as to investigate its associated outcome. Seventeen ICU clinical indicators were created to represent measures of adherence, and the adherence rate were calculated for each patient by simply adding up the number of indicators to which care was adherent divided by the sum of number of applicable indicators for that patient. The mean adherence rates for patients were calculated for first 72 h. Patient outcome was in-hospital mortality and also the post-discharge Glasgow Outcome Scale (GOS) at 3, 6 and 12 months. The authors declared that this study was not a comparison of the data between the two sites rather a representation of the practices followed in the two sites.

The study showed the overall ICU adherence rate was 74.9% (standard deviation [SD] 11.0) at JPNATC. According to the study results, the following indicators had adherence rates >90%: Achieving target temperature, not using prophylactic barbiturates, timely start of nutritional support and avoidance of intravenous steroids. Intracranial pressure (ICP) monitors were placed in 63% of patients, 52% of patients with intracranial hypertension received some sort of ICP reduction strategy and among patients with ICP monitoring, 94% of patients had all cerebral perfusion pressures 50–70 mmHg. Ninety-nine percent of patients received prophylactic antiepileptic medications. At HMC, the overall ICU adherence rate was 71.6% (SD 10.4) and the following indicators had adherence rates >90%: Achieving target temperature, not using prophylactic barbiturates, timely start of nutritional support and avoidance of intravenous steroids. ICP monitors were placed in 84% of patients and 98% of patients with intracranial hypertension received some form of ICP reduction treatment. Among patients with ICP monitoring, 63% of patients had all cerebral perfusion pressures 50–70 mmHg. Forty-two percent of patients received prophylactic antiepileptic medications. At JPNATC, a rise in adherence rate by 1% was associated with 3% lower in-patient mortality whereas an adherence rate <65% was associated with nearly twice higher in-patient mortality. However, at HMC, there was no significant association between adherence rate and in-patient mortality. In the post-discharge period the mortality and functional status were assessed at both the centres. At JPNATC, the number of deaths increased from 24% at discharge to 29% at 3 months, to 34% at 6 months and to 36% at 12 months. In HMC, there was only one new known death among post-discharge patients. While investigating the functional status in both centres, it was found out that, at discharge 8% of JPNATC and 21% of HMC patients returned to baseline functional status. Hence to summarise, the main findings in this Indo-US joint study early ICU guideline adherence was associated with lower in-patient mortality, >65% adherence resulted in reduction in the in-patient mortality by 2 times and even though 60% of patients shown improved functional status from discharge to 12 months post-discharge deaths and deterioration of GOS occurred at home. In this study, authors found out that adherence to the guidelines