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The Elephant in the Room: The Case of Re-Categorization of Moderate Traumatic Brain Injury

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Traditionally traumatic brain injury based on Glasgow comma scale is classified into mild, moderate and severe category [1]. According to estimate by USA CDC, annually about 5 million persons suffer with traumatic brain injuries, out of which 230,000 get hospitalized and further 50,000 also dies. Initial evaluation and resuscitation of traumatic brain injury cases on arrival at the hospital and further management is critical for survival and disability reduction as well as initial Glasgow comma score is an important entity for early categorization and further planning of management [2, 3]. One of the limitations in the management of traumatic brain injury is its heterogeneity, becoming a barrier to optimal management. The management and categorization of severe and mild injury categories are well established, however ambiguity in categorization of moderate traumatic brain injury group leads to inadequate management, so need of hour is detailed sub-categorization of moderate traumatic brain with Glasgow comma scale scoring 9-13, is very essential for better and rationale based proper management guideline can go long way in improving neurological as well as functional outcome and aid in reliable prognostication also.

The importance of proper categorization in traumatic brain injury cases cannot be exaggerated as extremely vital for triage of cases, prioritization in imaging and allocation of hospital bed and intensive care unit, selection of appropriate management protocol besides outcome and prognosis. Although various injury scale exits to grade the severity of trauma victims. These includes Abbreviated Injury Scale, Organ Injury Scales, Injury Severity Score, Glasgow Coma Score.

Glasgow Paediatric Coma Score, Revised Trauma Score, etc., for example, Revised Trauma Score is a physiological scoring system, Revised trauma score is calculated from the patient data comprises of Glasgow comma scale, systolic blood pressure and respiratory rate. The values ranges from 0 to 7.8408 but gives heavy weight age to the Glasgow Coma Scale to compensate for major head injury without multisystem injury or associated major physiological changes [4].

Godoy et al. observed up to 15% mortality in moderate traumatic brain injury cases, a heterogeneous entity that shares many aspects of its pathophysiology and management with severe traumatic brain injury, so this group being poorly defined in the literature [5]. Moderate traumatic brain injury group cases show relatively slower recovery, neurological complications. Godoy et al. strongly emphasized the importance of neuroimaging is essential for the proper management of tmoderate traumatic brain injury cases and Godoy et al. proposed a new scheme of categorization of traumatic brain injury cases into two groups. The first group is ''Potentially severe TBI'' with a GCS score of 9-10, while the other group with abnormal GCS of 11-13 [5]. Authors advocated use of proposed calssification would lead to improvement in the care of patients with traumatic brain injury, identifying with high risk cases. Patients with lower GCS scores 9-10, especially associated with significant space-occupying lesions on the CT scan, needs to be managed following the guidelines for severe traumatic brain injury cases, while those cases with a GCS range of 11 to 13 may be managed more conservatively [6].

Following the various constraints of the GCS, we further propose a "potentially severe" brain injury group among the moderate head injury, if any one of following features are present i.e. eyelid edema, aphasic, intubated, associated high spinal cord injuries, needing sedation and or muscle relaxation and extreme age of life. Theses potentially severe brain injury group cases although labeled as the moderate traumatic brain injury, these subgroup should take preference in cases needing admission in the intensive ca re unit, repeat imaging study, frequent neurological

status evaluation and potentially be treated as severe injury although by GCS scale, patient falls into moderate traumatic brain injury category. These cases must be managed on the line of severe head injury group. Irrespective of the original GCS score 9-13, according to existing management protocol.

We advocate correct categorization of patients with traumatic brain injury is essential for management and early identifying cases with high mortality risk. Future studies is e needed to further substantiate the proposed severe traumatic brain injury cases among moderate traumatic brain injury based on GCS score and it will have positive impact on management of our patients.

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