

## Formulation of a Three-Tier Cisternal Grade as a Predictor of In-Hospital Outcome from a Prospective Study of Patients with Traumatic Intracranial Hematoma- A review report.

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Traumatic brain injury (TBI) is an escalating problem with an almost geometric progression. The problem escalated with increasing population and traffic, but with limited resources to handle the issue.<sup>1,2</sup> The present study has its objective focused on making a prognosis of the TBI patient.<sup>3</sup> The outcome prediction helps in conveying the prognosis to the patient's family. Needless to say, a prognostic prediction is also helpful in the optimal and timely utilization of available resources.

There have been various attempts made in the past towards making a prognostication of patients with TBI. The multi-central large population studies of CRASH (Corticosteroid Randomization After Significant Head Injury, sponsored by the Medical Research Council) study and the international mission on prognosis and clinical trial design in TBI (IMPACT) has enabled high-accuracy Web-based prediction models.<sup>4,5</sup> The latest article introduced the three tier cisternal grade<sup>3</sup> in the prognosis of TBI which is simple and overall takes less time. Hence it can be used by junior doctors, nursing and even paramedical staff.

Advantages of this study being, it do not have the significant observer bias, because of simplification of cisternal assessment as absent or present in contrast to various other scoring systems which have used partial compression, present or absent.<sup>6-8</sup> Another strong point is inclusion of all the nine (six perimesencephalic and three anterior) cisterns in comparison to other studies which have used only perimesencephalic cisterns.<sup>6,9</sup> In practice the sum of the 9 cisterns, otherwise called the total cisternal score, can be easily fitted into 1 of the 3 levels.Expected outcome at each level can be predicted.Prognosis using three tier grade is based on initial CT Head (Computed tomography scan) which is a mandatory investigation in all cases of TBI and does not require MRI which is costly, time consuming and not used generally as the first line of investigation.Authors have excellently used statistical formulas to remove all the confounding factors and documented strong specificity and sensitivity for the grades.

Although GCS (Glasgow Coma Score) is an important predictor of outcome, it is subject to error from alcohol intoxication, sedation and intubation, and inter-rated variability.<sup>9-11</sup> The three tier cisternal grade<sup>3</sup> is technically simple with minimal inter observer variation. Overall it may find place not only in inter physician communications and documentation but also (as suggested by authors) in traumatic brain injury research.

## References

1. Maas A.( 2016) Traumatic brain injury: Changing concepts and approaches. *Chin J Traumatol*; 19(1): 3-6.
2. Roozenbeek B, Maas AI, Menon DK.( 2013) Changing patterns in the epidemiology of traumatic brain injury. *Nat Rev Neurol*; 9(4): 231-6.
3. Avanali R, Bhadrans B, Panchal S, et al.( 2017) Formulation of a Three-Tier Cisternal Grade as a Predictor of In-Hospital Outcome from a Prospective Study of Patients with Traumatic Intracranial Hematoma. *World Neurosurg*; 104: 848-55.
4. Collaborators MCT, Perel P, Arango M, et al.( 2008) Predicting outcome after traumatic brain injury: practical prognostic models based on large cohort of international patients. *BMJ* ; 336(7641): 425-9.
5. Steyerberg EW, Mushkudiani N, Perel P, et al.( 2008) Predicting outcome after traumatic brain injury: development and international validation of prognostic scores based on admission characteristics. *PLoS Med*; 5(8): e165; discussion e.
6. Jacobs B, Beems T, van der Vliet TM, Borm GF, Vos PE. (2010)The status of the fourth ventricle and ambient cisterns predict outcome in moderate and severe traumatic brain injury. *J Neurotrauma*; 27(2): 331-40.
7. Maas AI, Steyerberg EW, Butcher I, et al.( 2007) Prognostic value of computerized tomography scan characteristics in traumatic brain injury: results from the IMPACT study. *J Neurotrauma*; 24(2): 303-14.
8. Yuh EL, Gean AD, Manley GT, Callen AL, Wintermark M.( 2008) Computer-aided assessment of head computed tomography (CT) studies in patients with suspected traumatic brain injury. *J Neurotrauma*; 25(10): 1163-72.
9. Raj R, Siironen J, Skrifvars MB, Hernesniemi J, Kivisaari R.( 2014) Predicting outcome in traumatic brain injury: development of a novel computerized tomography classification system (Helsinki computerized tomography score). *Neurosurgery* ; 75(6): 632-46; discussion 46-7.
10. Munakomi S.( 2016) A comparative study between Marshall and Rotterdam CT scores in predicting early deaths in patients with traumatic brain injury in a major tertiary care hospital in Nepal. *Chin J Traumatol*; 19(1): 25-7.
11. Munakomi S, Bhattarai B, Srinivas B, Cherian I.( 2016) Role of computed tomography scores and findings to predict early death in patients with traumatic brain injury: A reappraisal in a major tertiary care hospital in Nepal. *Surg Neurol Int*; 7: 23.