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Study of Assessment of Prognostic Factors by Using Glassgow Coma Scale (G.C.S.) Scoring System

Dr. Dilip K. Apturkar[1], Dr. Aakash Joshi[2*]
[1]HOD & Professor, Department of Surgery, Rural Medical College, Pravara Institute of Medical Sciences, Loni, Tal Rahata, Dist. Ahmednagar, India
[2]Resident, Department of Surgery, Rural Medical College, Pravara Institute of Medical Sciences, Loni, Tal Rahata, Dist. Ahmednagar, India

Original Research Article

***Corresponding author**
Dr. Aakash Joshi

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Abstract: The management of severe head injury is labour intensive and costly for institution and families involved. Many who survive severe head injuries have a protracted hospital stay requiring multidisciplinary rehabilitative and supportive care thus resulting in financial and emotional burden to the families. The present study was carried out on patients of head injury, referred to Department of General Surgery at Rural Medical College & Hospital, Loni, Tal. Rahata, Dist. Ahmednagar.100 Cases studied among the patients admitted with the head injury to Surgical Ward & ICU. Glasgow Outcome Score or Scale assessed as: 10% (10) cases patients were dead, 1% (1) case suffered in Vegetative state, 2% (2) cases suffered with Severe disability, 3% (3) cases suffered with Moderate disability, 84% (84) cases recovered well after mild, Moderate, Severe Head Injury. Glasgow Outcome Score or Scale assessed as : 10% (10) cases patients were dead, 1% (1) case suffered in Vegetative state, 2% (2) cases suffered with Severe disability, 3% (3) cases suffered with Moderate disability, 84% (84) cases recovered well after mild, Moderate, Severe Head Injury.
Keywords: head injury, Severe disability, Severe Head Injury.

INTRODUCTION

The management of severe head injury is labour intensive and costly for institution and families involved. Many who survive severe head injuries have a protracted hospital stay requiring multidisciplinary rehabilitative and supportive care thus resulting in financial and emotional burden to the families.

The mechanical brain damage that occurs at injury cannot be repaired or reversed by therapy but, management should ensure that secondary damage does not occur. The primary neurosurgical management aims at identification and rapid treatment of localized mass lesions and raised intracranial pressure. Management of a head injury is a multidisciplinary issue and involves multitudes of services like neurosurgeons, intensivists, anesthetists, trained nurses, physiotherapists, occupational therapists and tremendous support from close relatives and friends [1].

The Glasgow Coma Scale (GCS) was introduced in 1974, a method for determining objectively the severity of brain dysfunction and coma, six hours after the occurrence of head trauma (HT). Nowadays, it is by far the most widely used score to assess the severity of HT in clinical research and to compare series of patients. The main advantage of this scale is that it can be utilized by physicians, nurses, and other care providers due to its simplicity. In the present review the history of GCS. The principles of scoring, the applications, the shortcomings and future trends concerning its application are discussed [2, 3].

METHODOLOGY

The present study was carried out on patients of head injury, referred to Department of General Surgery at Rural Medical College & Hospital, Loni, Tal. Rahata, Dist. Ahmednagar. 100 Cases studied among the patients admitted with the head injury to Surgical Ward & ICU.

RESEARCH DESIGN

A prospective hospital based observational study. Study Population In the present study 100 cases of Head Injury were studied who were admitted under General Surgery.

Duration of study

Two years

Sample Size

100 Patients

Patient Selection

Inclusion criteria

- Adults from the age of 18 years onwards.
- Patients with a history of road traffic accident, fall or assault were included in this study.

Exclusion criteria

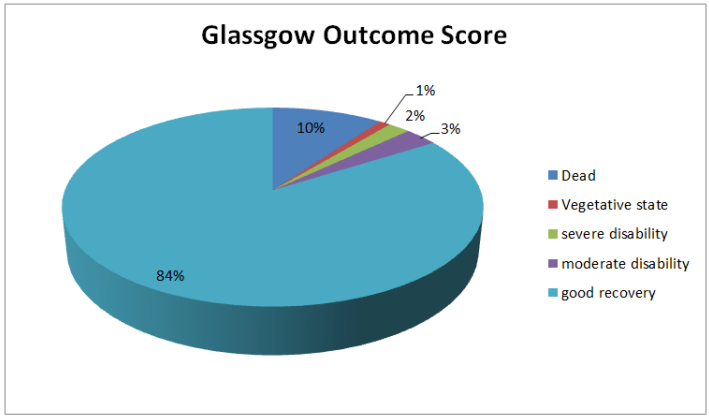
- Pediatric cases.
- Patients those could not be followed for reasons like : shifting of patient by patients relatives to other cities

Almost all patients had altered sensorium or neurological deficit or a combination of both. All these patients were clinically assessed and grouped according to the Glasgow Coma Scale before the procedure was conducted.

Outcome factors

As per Glasgow outcome scale; death, vegetative state, svere disability, moderate disability ,and good recovery were the outcomes which were assessed at interval of one month.

RESULTS

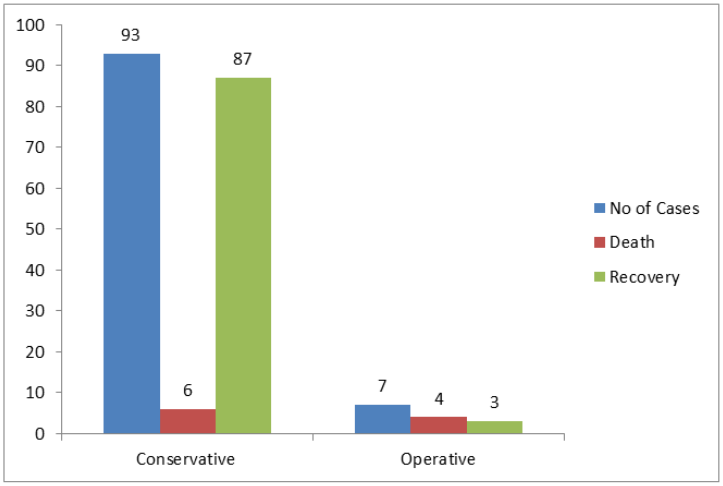


Graph-1: Glassgow Outcome Score

Table-1: Glassgow Outcome Score in patients

Sr. No.	Categories	GOS	Percentage of cases
1	Dead	1	10%
2	Vegetative state	2	1%
3	Severe disability	3	2%
4	Moderate disability	4	3%
5	Good recovery	5	84%

Glasgow Outcome Score or Scale assessed as: 10% (10) cases patients were dead, 1% (1) case suffered in Vegetative state, 2% (2) cases suffered with Severe disability, 3% (3) cases suffered with Moderate disability, 84% (84) cases recovered well after mild, Moderate, Severe Head Injury.

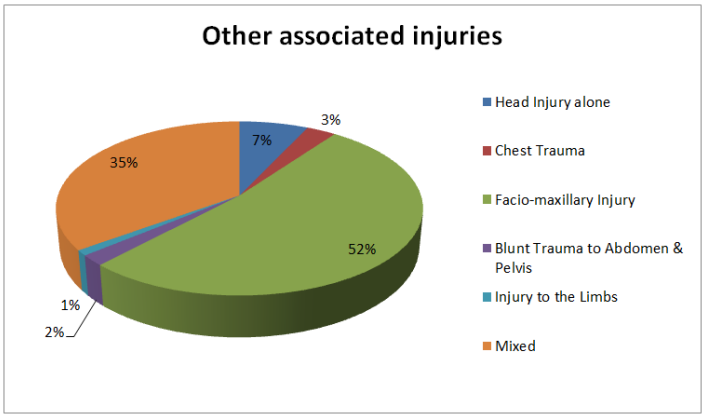


Graph-2: Outcome after neurosurgical management

Table-2: Outcome after neurosurgical management

Neurosurgical Management	No. of Cases	Outcome	
		Death	Recovery
Conservative	93	06	87
Operative	07	04	03

93% (93) cases were managed conservatively out of that 6% (6) cases expired and 87% (87) patients recovered. 7% (7) cases, which underwent Neurosurgical intervention, 4% (4) expired and 3% (3) cases recovered.



Graph-3: Associated Injuries with Head Trauma

Table-3: Associated Injuries with Head Trauma

Other Injuries	Percentage
Head Injury alone	07%
Chest Trauma	03%
Facio-maxillary Injury	52%
Blunt Trauma to Abdomen & Pelvis	02%
Injury to the Limbs	01%
Mixed	35%

Only 7% (7) of the cases had Head injury alone, rest all the patients were associated with other injuries such as Chest Trauma 03% (3), Facio-maxillary Injury 52% (52), Blunt Trauma to Abdomen & Pelvis 02% (2), Injury to the Limbs 01% (1) and mixed injuries 35% (35). All the associated injuries had impact on Prolong Hospital Stay.

DISCUSSION

The GCS was developed by Teasdale and Jennett in 1974 as an objective measure of the level of consciousness [4]. It has since become the most widely used clinical measure of the severity of injury in patients with severe traumatic brain injuries (TBIs). A number of studies have confirmed a fairly high degree of inter- and intra-rater reliability of the scale across observers with a wide variety of experience.

It is a component of the Acute Physiology and Chronic Health Evaluation (APACHE) II score the (Revised) Trauma Score, the Trauma and Injury Severity Score (TRISS) and the Circulation, Respiration, Abdomen, Motor, Speech (CRAMS) Scale, demonstrating the widespread adoption of the scale. In present study, GCS has shown good correlation with Glasgow outcome score. There was consistent improvement in outcome with increasing score of GCS.

Anna Levati *et al.* [5] found that GCS score of 5 or less as opposed 6 or more correlate well with mortality. The difference was highly significant for compared group and for younger subgroup. Prognosis was better in patients with “lighter coma”. However they concluded that neurological status on admission can not by itself be considered a reliable prognostic factor.

Narayan RK *et al.* [6] found in their study that GCS ranked second amongst the clinical indicators in TBI. However, when used together with other clinical indicators, it notably improved the level of confidence. A positive predictive value of 77% for a poor outcome (dead, vegetative, or severely disabled) was measured for patients with a GCS score of 3-5 and 26% poor predictive value for a GCS score 6-8. Thus overall GCS is a good predictor of outcome, after initial management of shock etc. is over or after six hours of admission to hospital. The technology can be an important role in

patient management. The innovative aids like data mining techniques make this more accurate in future.

CONCLUSION

Glasgow Outcome Score or Scale assessed as : 10% (10) cases patients were dead, 1% (1) case suffered in Vegetative state, 2% (2) cases suffered with Severe disability, 3% (3) cases suffered with Moderate disability, 84% (84) cases recovered well after mild, Moderate, Severe Head Injury.

REFERENCES

1. Ko DY. In Clinical evaluation of patients with head trauma. Clin N Am 2002; 12 (2)165-174.
2. Riegor J, Linesenmaier U. Pfeifer M. Radiological diagnosis in acute craniocerebral trauma. Radiologe, 2002; 42 (7) : 547-55.
3. Udsteun GJ, Claar JM. Imaging of acute head injury in the adult. Seminar in Ultrasound CT MR, 2001; 22 (2): 135-147.
4. Kido DK, Cox C, Hamill RW, Rothenberg BM, Woolf PD. Traumatic Brain Injuries: Predictive Usefulness of CT. Radiology 1992; 182 (3): 777-781.
5. Philip T Munro, Rik D Smith, Timothy R J Park. Effect of patients' age on management of acute intracranial haematoma: prospective national study, e, Nov 2002;325:1001 BMJ Volume 325 2 (1-5)
6. Segun T Dawodu. Traumatic Brain Injury (TBI) - Definition, Epidemiology, Pathophysiology, http://emedicine.medscape.com/article/326510-overview dated Mar 06 2013
7. Tayade MC, Kulkarni NB, the Interface of Technology and Medical Education in India: Current Trends and Scope. Indian Journal of Basic & Applied Medical Research; December 2011: Issue-1, Vol.-1, P. 8-12
8. Tayade MC, Karandikar PM , Role of Data Mining Techniques in Healthcare sector in India, Sch. J. App. Med. Sci., 2013; 1(3): June ; 158-160.