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Outcome of surgically treated head injury in unattended patients at Neurosurgery Department in Tertiary Care Centre - an institutional study

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Abstract: This is a prospective study, carried out at our department. Many patients with history of trauma with head injury, whose identity cannot be ascertained, are admitted in our hospital. The management of these unattended patients from pre-hospital till discharge, rehabilitation or death is full of difficulties especially when surgical intervention has to be done. We conducted a prospective study by enrolling 11 consecutive unattended patients in whom neurosurgical procedures performed at our hospital. Out of 11 patients, 9 (82%) were male, most were in the age group of 21-30 years. The mean age was 30 years. Mean duration of hospital stay was 11.27 days. The cause of head injury was road traffic accident in all patients. Majority of the patients 10 (90%) had Glasgow coma scale less than 8 on admission. Two patients 2 (18%) died in hospital, 7 (63%) patients had good recovery. During the course of treatment identity of all 11 patients was established and 8 (72%) patients who survived were discharged to home. All discharged patients were followed at interval of 1 month and 3 months. Four (50%) & 5 (62%) patients showed good recovery (GOS) at 1 month & 3 month respectively

Key words: anonymous patient; head Injury; nameless patient; outcome; unknown patients; unidentified patient

Introduction

The total number of deaths in road accidents in India was 169107 during 2014 (1). The incidence of road traffic accident in Rajasthan in 2014 was 24639 and out of which the total number of deaths in road accidents in Rajasthan was 10287 during 2014, which was

6.08% of the total number of deaths in road accidents in India during the year (1). In India, the incidence of head injury is steadily increasing with urbanization and increasing number of vehicular population (2). Among the road traffic accidents 70% have head injury, among road accident deaths 70% are

due to head injury. Majority of deaths occur during first 72 hours. Recently, number of fatal accidents has increased in India. Every minute there is an accident and every eight minute there is a death (3). Attempts to systematize care of patients with severe TBI have culminated in evidence-based guidelines issued by the joint task force between the Brain Trauma Foundation and the American Association of Neurological Surgeons (4, 5). Our institute which is a tertiary care center of a developing country and a lot of severe head injury patients are being referred to us. Many such patients are often brought by policemen and bystanders and their identities are not known at the time of admission. These patients present a unique challenge in management. In this background we conducted prospective study in this group of patients who underwent neurosurgical procedure(s) for understanding their mode of injury, presentation, treatment and outcome and factors affecting outcome after surgery of head injury.

Methodology

This was a prospective study, conducted at Department of Neurosurgery, Maharana Bhupal Government Hospital, RNT Medical College, Udaipur, Rajasthan. From March 16, 2015, until March 30, 2016, out of 118 consecutive patients unattended patients admitted in our department with history of head injury, eleven (11) patients who underwent neurosurgical procedure(s) were enrolled in the study. We analysed demography, mode of injury, clinical presentation, and condition at admission,

treatment given, hospital stay, outcome and factors affecting outcome of the patients. All patients were clinically evaluated by a team comprising of doctors from surgical, medical and orthopaedics specialties in the emergency department and subsequently admitted and treated at Neurosurgery. Complete primary evaluation was done. NCCT brain and whenever necessary, X-rays, CT scan of spine, USG abdomen, MRI spine or contrast CT (abdomen/chest) were carried out to rule out other injuries.

Results

Out of 11 patients, 9 (82%) were male, and only 2 (18%) were female (Table 1). None of patients was less than 20 yrs of age, while the most patients 5 (45%) were in the age group of 20-29 years, while only 4 (36%) patients were of 30-39 year age group. None were > 60 years of age group (Table 2). Road traffic accident was the only cause of injury in all 11 cases.

TABLE 1
Demography (gender) of head injury in unknown patients underwent neurosurgery:
(N=11)

Demography	No. of patients	Percentage
Gender		
Male	9	82
Female	2	18
Total	11	

TABLE 2

Demography of head injury in unknown patients underwent neurosurgery: (N=11)

Demography	No.of patients	Percentage
Mean age(years)		
Age group		
<20	-	
20-29	5	45
30-39	4	36
40-49	2	18
50-59	-	
>60	-	
Total	11	

At the time of admission Glasgow Coma Scale (GCS) score of less than 8 was seen in 9 (82%) cases. GCS between 8 and 12 was seen in 2 (18%) cases. Plain CT scan of head revealed EDH in 6 (54%) patients, 4 (36 %) had SDH and 1 (9%) patient had depressed fracture (Table 3). Associated injuries were seen in total 3 (27%) patients. One patient (9%) had chest injury, 2 (18%) had limb fracture.

TABLE 3

Clinical characteristic and type of lesion in head injury of unknown patients treated surgically: (N=11)

	Number of patients	percentage
Cause of head injury	11	100
Road traffic accident	11	100
Other	-	
Glasgow coma scale at admission		
13-15	-	
12-8	2	18
<8	9	82
Type of brain injury (major component)		
Extradural haematoma (EDH)	6	55
Subdural haematoma(SDH)	4	36
Cerebral contusion	-	
Depressed fracture	1	09
Diffuse axonal injury(DAI)	-	
Subarachnoid haemorrhage(SAH)	-	
Other injury		
- Chest injury	1	09
- Abdominal injury	-	-
- Limb fracture	2	18
Other emergency surgical speciality procedure	1 ICD insertion for chest injury	09

TABLE 4
Surgical procedures performed (N=11)

Type of Surgery	No. of patients	Percentage
Decompressive Craniectomy	6	54
Craniotomy	4	37
Depressed fracture elevation	1	9
Burr hole evacuation	-	-
Total	11	100

These 11 patients who needed surgical intervention where decompressive craniectomy was carried out in 6 (54%), craniotomy was in 4 (37%), 1 patient (9%) underwent depressed fracture elevation (Table 4). During treatment, 3 patients (27%) had pneumonia, 1 (9%) had wound infection (Table 5). Mean stay at hospital in these patients was 11 days with longest stay of 20 days in one patient. At the time of discharge, 3 patients (27%) had GCS of 13-15 and 5 (45%) had GCS score 12-8, only 1 patient had GCS less than 8 at time of discharge. According to Glasgow outcome scale (GOS) of these patients, 3 (27%) had good recovery, 4 (36%) had moderate disability, 1 (9%) had severe disability, and 3 (27%) died during treatment. During the course of treatment identity of all the 11 (100%) patients was identified and 8 (73%) patients who survived were sent home with relatives. All patients who were discharged followed at 1 month and 3 month intervals. 4 (50%) & 5 (62%) patients showed good recovery (GOS) at 1 month & 3 month respectively. None of the discharged patients lost to follow up at 3 months.

TABLE 5
Complications during treatment of the patients (N=11)

Complications	No. of patients	Percentage
- Pneumonia	3	27
- Meningitis	-	-
- Septicemia	-	-
- Wound infection	1	9
- CSF leak	-	-
-hydrocephalus	-	-
Total	4	-

TABLE 6
Outcome and destination of patients during discharge (N=11)

Outcome	No. of patients	Percentage
Glasgow outcome scale		
Good recovery	3	27
Moderate disability	4	36
Severe disability	1	9
Vegetative state	-	-
Death	3	27
Glasgow Coma scale at discharge		
13-15	3	27
8-12	5	45
< 8	-	-
Discharged location		
Home	11	100
Destitute Home	0	0

TABLE 7
Outcome during follow up of patients after discharge (N-08)

Outcome	After 1 month N=08	After 3 month N=08
Glasgow outcome scale		
Good recovery	4	5
Moderate disability	4	3
Severe disability	-	-
Vegetative state	-	-
Death	-	-
Lost to follow	0	0

TABLE 8
Average hospital stay in unattended patients (N-11)

Longest stay period	Longest ICU stay period	Mean stay
20 days	13 days	11days

Discussion

In a study by Ahmad FU et al. 2006, out of 325 unidentified patients, there were 9 (3%) patients in the pediatric age group and 16 (5%) patients were above 60 years of age. Of these, 193 (65%) could be identified during the hospital stay (6). An additional 40 (13%) patients were sent home after they regained memory of their addresses. Forty seven patients (15%) died without their identities being established. Seventeen (6%) patients remained unknown and were sent to rehabilitation/poor homes with the help medical social worker (6). In study of Wanger et al, approximately one third of patients with moderate head injury and half of patients with severe head injury were operated, most of them being for cerebral contusions and/or

subdural hematomas (7).

Mortality following head injury has been reported to be in the range of 39-51% (8, 9).

Study by Liew BS et al. showed both known and unknown head injury patients, among 72 patients of head injury eleven patients (15%) died during hospitalization (10). There were only sixty one (85%) patients were discharged from hospital, where by twenty nine (40%) with good outcome (GOS 4 and 5) while the remaining thirty two (44%) patients were with either severe disability or vegetative state. Only one patient continued to suffer severe disability, while the rest had moderate or good recovery (10). In another study there were twelve patients (17%) under the age of twenty years, only 5 patients (7%) were above 60 years. Twenty patients (29%) were treated by surgery, most often for cerebral contusion (33 patients 47%) (11).

Till date no prospective study has been conducted to assess outcome of such unidentified patients who underwent neurosurgical procedures. In our study 11 patients who needed surgical intervention where decompressive craniectomy was carried out in 6 (54%), craniotomy was in 4 (37%), 1 patient (9%) underwent depressed fracture elevation. Mean hospital stay in these patients was 11 days with longest duration of 20 days. Among these patients, 3 (27%) had good recovery, 4 (36%) had moderate disability, 1 (09%) had severe disability, and 3 (27%) died during treatment. During the course of treatment identity of all 11 (100%) patients was identified and 8 (72%) patients who survived were sent home with relatives.

These unidentified patients with unknown identities present considerable challenges in

their management. They are usually found lying on road in unconscious state and brought to hospital by policemen or by passers who are ill equipped and often ignorant in handling patients with severe injuries. Their prehospital management is usually improper and lack of proper transfer facilities, in ambulances, further aggravates their condition. We receive many such patients from peripheral hospitals, because of lack of proper facilities there. Very often such patients are destitute and their injuries are compounded by presence of debility because of poor nutrition, other medical conditions like diabetes, hypertension, substance abuse and mental illnesses. Therefore, it is imperative that these patients be evaluated with a very high index of suspicion for above conditions. During their hospital stay, the role of paramedical staff is of paramount importance; their daily nursing care in absence of a relative is a challenging task. It needs a team of trained and empathetic nursing staff along with a physiotherapist, dietician, psychologist, and social worker who can help and rehabilitate them. Performing neurosurgical procedures in such patients is not devoid of difficulties ranging from consent to rehabilitation. Existing infrastructure and much trained staff, enthusiastic multidisciplinary team, social workers and media personals help many unidentified patients with severe head injury in rehabilitation. It is highly gratifying for the treating team to see such patients return back to our outpatient department with their relatives. We believe that there is an urgent need to sensitize the general public and police about the transportation and prehospital

management of such severe head injury patients. Our peripheral hospitals need to be well equipped for treatment of such patients. Treatment of such unknown patients can entail a huge expenditure and therefore, every hospital should allocate funds for the above purpose and only those patients who are in need of higher medical care should be referred to higher center. The role of social media and general media also has a capacitive role in spreading awareness and rehabilitating unidentified patients.

Conclusion

Unidentified head injury patients are posed with challenges. Outcome of these patients is comparable to patients who are accompanied by their relatives. Their management from prehospital to treatment and discharge from hospital is quite challenging especially in ICU and meeting nutritional standards. There mean hospital stay is sometimes longer in comparison to similar patients as they may remain unidentified. They need special care for which staff should be well trained and hospital must have economic resources. Hospital should have a protocol system to deal with such patients especially when they require neurosurgical interventions. A good network of social workers and active involvement of media helps in identification and rehabilitation of these patients.

References

1. <http://ncrb.gov.in/StatPublications/MAPS-2014/adsi-2014%20maps/ADSI-2014-Accidents-RoadAccidentCases.pdf>
2. Report of road safety cell: Ministry of Transport Govt of India, January 1993.

3. Head injuries: A neglected field in India. National Medical Journal 1991; 4:53-44.
4. Guidelines for the management of severe head injury. The Brain Trauma Foundation. The American Association of Neurological Surgeons, The Joint Section on Neurotrauma and Critical Care. J Neurotrauma. 1996;11:641-734.
5. The Brain Trauma Foundation. The American Association of Neurosurgical Surgeons. The Joint Section on Neurotrauma and Critical Care. Trauma systems. J Neurotrauma. 2000;17:457-627.
6. Ahmad FU, Mahapatra AK, Mehta VS. Outcome of unknown head injury patients at a tertiary care neurosurgical centre: Neurology India 2006; 54:73-4.
7. Wanger AK, Sessere HC, Hammond FM, et al. International Traumatic Brain Injury: Epidemiology and risk factors associated with Severity and Mortality. J Trauma 2000; 49:404-10.
8. Lannoo E, Van Rietvelde F, Colardyn F, et al. early predictors of mortality and morbidity after severe closed head injury. J Neurotrauma 2000;17:403-14.
9. Bulger Em, Nathens AB, Rivara FP, et al. Brain Trauma Foundation: Management of severe head injury: Institutional variations in care and effect on outcome. Crit Care Med 2002; 30:1870-6.
10. Liew BS, Johari SA, Nasser AW, Abdullah J. Severe Traumatic Brain Injury: Outcome in Patients with Diffuse Axonal Injury Managed Conservatively in Hospital Sultanah Aminah, Johor Bahru- An Observational Study. Med J Malaysia 2009; 64: 280-8.
11. Outcome of head injury in unknown patients at Level-1 apex trauma centre Nath, Haradhan Deb et al. The Indian Journal of Neurotrauma , Volume 8 , Issue 1 , 11 - 15