How to Improve the outcome of Unidentified/ Unaccompanied Patient of Traumatic Brain Injury: An Institutional Study for Proposal of Framework

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Abstract

Introduction: Management of unidentified and unaccompanied patients is difficult in any health care setup due to challenges in managing their day-to-day care, treatment, and finally their rehabilitation as compared to patients having their attendants. *Aims & Objectives:* This study was designed to collect data of unidentified & unaccompanied traumatic brain injured patients to prepare a framework for better outcome of these patients. *Patients and Methods:* All unidentified and unaccompanied traumatic brain injured patients admitted in department of Neurosurgery, K.G.M.U., Lucknow from June 2015 to December 2017 (2.5 years) were enrolled in this study. We have devised various strategies to utilize the available infrastructure such as reserved the beds for these patients in the ward, allocation of designated fund for consumables, dedicated trained paramedical staff for nursing and care, enthusiastic multidisciplinary team of doctors for overall management during hospital stay, speeding the identification process through intense web based search of information available in Voter list & Aadhaar card. We do our our search on the basis of some clues gained during history taking of patient and daily rounds. Departmental staff, social workers, police and media personal help were taken for relocation of these patients to their home or non government organisation shelter homes. *Results:* There were 86 patients, 0.25% of all visits. Mortality was highest for poly-trauma patients having severe traumatic brain injury (n=32, mortality= 68.7%), followed by moderate head injury (29, 41.3%) & mild head injury (25, 8%). Overall mortality was 41.8%. Outcome of these patients was comparable to patients who are accompanied by their relatives. Identification was made prior to hospital discharge in 96%. In this group, the most common source of information were the patient (40%, successful web based voter list search for home address in 12% of these cases), family (22%), or document eventually found on the person or belongings (8%). Survivors were much more likely to be identified than those who died (94% versus 83%, P less than .0001).

   Conclusion: Comprehensive team approach of sensitized hospital staff, society and media is need for better management of unidentified and unaccompanied head injury patients. Web based Voter list search for home address is important digital tool helping in relocation. Framework development and strict adherence to strategies leads gratifying results.
   Keywords: Unknown Patients; Traumatic Brain Injury; Unaccompanied patients.

Introduction

   Unidentified and unaccompanied traumatic brain injured patients present a major challenge in any health care setup. These patients are brought either by police, bystanders, or are referred from a peripheral health centre [1]. Literature reviewed has focused on many difficulties faced during their management including prehospital care, treatment, and their rehabilitation [2,3]. These patients tend to stay in hospital for longer duration and require more hospital resources including nursing care and may have high morbidity and mortality [4,5]. Planning a strategy and follow a framework based management for early identification of these unidentified patients may lead to reduction in morbidity and mortality of these patients and early relocation of patients to their home.

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Patients and Methods

All unidentified and unaccompanied traumatic brain injured patients admitted in department of neurosurgery, KGMU, Lucknow from June 2015 to December 2017 (2.5 years) were enrolled in this 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.

We have devised strategies to utilise the available infrastructure in hospital and neurosurgery ward like reserving few beds adjacent to nursing staff station in ward for keen watch on vitals and nutritional feeds monitoring and other nursing cares, daily morning and evening round by senior faculty members, regular update of any information given by patients to search their home to speed up the identification process through intense web based search of information available in Voter list, Aadhaar card and biometrics.

Allocation of designated fund for consumables was done as per need. Steps were taken to facilitate the relocation of such patients to their home or shelter homes with the help of departmental staff, social workers and media personal even though it may not be the prime job of the hospital. A special sanction was taken to pay for the travel arrangementsof these patients.

Ambulance was arranged for nearby places, while tickets were purchased for longer train journey, andsome cash was also given for onward road travel.

Result

There were total 86 consecutive patient enrolment in this study, 0.25% of all visits during that period. 91.8% of the patients were male. Most common age group was 40-49 years, 33.7% patients falls in this age group[Table1].

Most common cause of trauma was road traffic accident (51.1%), followed by unknown mode of injury (30.2%). Mortality was highest for poly-trauma patients having severe traumatic brain injury (n=32, mortality= 68.7%), followed by moderate head injury (29, 41.3%) & mild head injury (25, 8%). Overall mortality was 41.8%. Others clinical characteristic and type of lesion in traumatic brain injury of unidentified and unaccompanied patients is given in detail in [Table 2].

Out of 86 patients, 40 (46.5%) patients were managed conservatively based on CT head findings and neurological status & 46 (53.4%) were operated. Decompressive craniectomy was most common operative procedure depending on the clinical & neurological status [Table3].

Overall complication rate during hospital stay was 22% [Table 4].

50 patients out of 86, who had survived was planned to discharge and relocate, but 3 patients absconded before their relocation, so 47 patients were relocated to their home (45 patients) and shelter home (2 patients) [Table 5].

Roll of regional voter list data search, available on website, was appreciating in 6 patients for relocation to their home. Outcome of these patients was comparable to patients who are accompaniedby their relatives. Identification was made prior to hospital

Table 1: Demography of traumatic brain injury in unidentified and unaccompanied patients (N=86)

Demography	Number of patients	Percentage
Gender		
Male	79	91.8%
Female	07	8.13%
Mean Age (Years)		
Age Group		
<20	1	
20-29	16	18.6%
30-39	18	20.9%
40-49	29	33.7%
50-59	15	17.4%
60 and above	07	8.13%

Table 2: Clinical characteristic and type of lesion in traumatic brain injury of unidentified and unaccompanied patients (N=86)

Characteristics	Number of Patients	Percentage
Cause of Trauma		
Road traffic accident	44	51.1%
Train accident	9	10.4%
Fall from height	7	8.1%
Cause unknown	26	30.2%
Glasgow Coma Scale (GCS) at the time of admission		
GCS 13-15	32	37.2%
GCS 8-12	29	33.7%
GCS <8	25	29%
Type of Brain injury		
Extradural Hematoma	16	18.6%
Subdural hematoma	26	30.2%
Cerebral contusion	43	50%
Diffuse Axonal injury	24	27.9%
Subarachnoid Haemorrhage	36	41.8%
Intraventricular Haemorrhage	12	14%
Depressed Fracture	11	12.7%
Scalp avulsion injury	4	4.6%
Pneumocephalus	9	10.4%
Other injury		
Maxillofacial injury	23	26.7%
Chest injury	6	6.9%
Blunt trauma abdomen	2	2.3%
Spine injury	4	4.6%
Long bone fracture	19	22%

Table 3: Treatment given at hospital (N=86)

Management	Number of patients	Percentage
Conservative management	40	46.5%
Surgical intervention	46	53.4%
Decompressive craniectomy	21	
Craniotomy	16	
Depressed fracture elevation	6	
Burr hole evacuation	3	

Table 4: Complications during treatment of the patients (N=86)

Complication	Number of patients	Percentage
Pneumonia	6	7%
Meningitis	2	2.3%
Septicaemia	3	3.5%
Wound infection	4	4.6%
CSF leak	2	2.3%
Hydrocephalus	1	1.1%
Total	19	22%

discharge in 96%. In this group, the most common source of information were the patient (40%, successful web based voter list search for home address in 12% of these cases), family (22%), or document eventually found on the person or belongings (8%).

Survivors were much more likely to be identified than those who died (94% versus 83%, P less than .0001).

Discussion

In a study by Ahmad FU et al. 2006, out of325 unidentified patients, there were 9 (3%) patients in the paediatric age group and 16 (5%)patients were above 60 years of age. Of these,193 (65%) could be identified during thehospital stay [6]. An additional 40(13%) patients were sent home after they regainedmemory of their addresses. Forty

Table 5: Outcome and destination of patients during discharge (N=86)

| Outcome	Number of patients	Percentage
Glasgow Outcome scale		
Good Recovery	28	32.5%
Moderate disability	09	10.4%
Severe disability	08	9.3%
Vegetative state	05	5.8%
Death	36	41.8%
Glasgow coma scale at the time of discharge (n=50)		
GCS 13-15	33	38.3%
GCS 8-12	09	10.4%
GCS<8	08	9.3%
Discharged Location (n=50)		
Home		
Located by Patient	20	40%
Police	08	16%
Family	11	22%
Voter list search	6	12%
Shelter home	2	4%
Absconded	3	6%
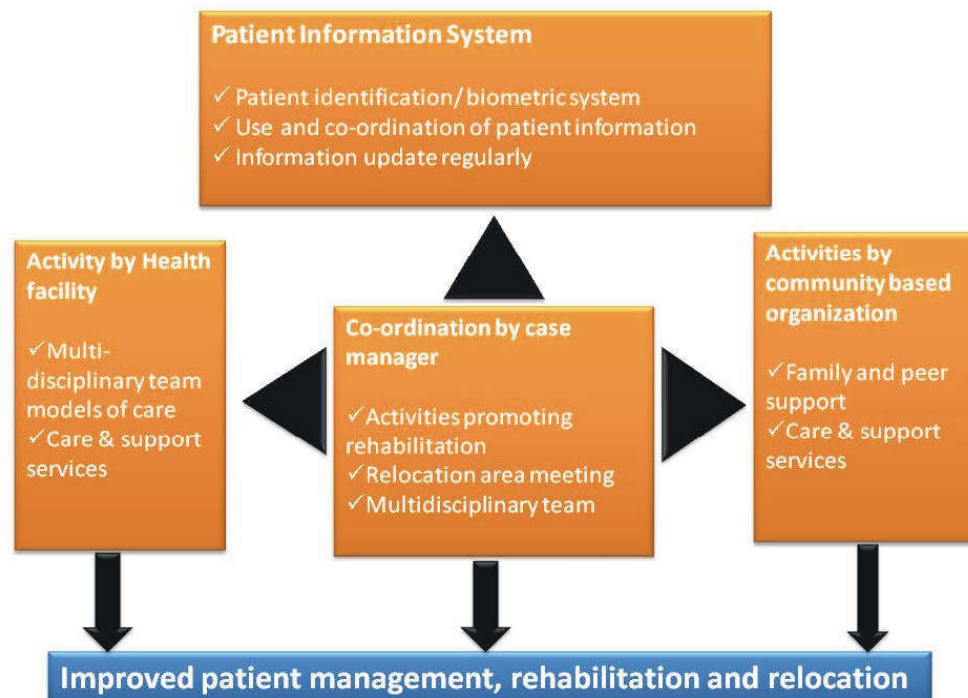
Fig. 1: Framework to improve unidentified & unaccompanied traumatic brain injury patients management and rehabilitation

sevenpatients (15%) died without their identitiesbeing established. Seventeen (6%) patientsremained unknown and were sent torehabilitation/poor homes with the help medical social worker [6]. In study of Wangeretal, approximately one third of patients withmoderate head injury and half of patients withsevere head injury were operated, most ofthem being for cerebral contusions and/orsubdural hematomas [7].

Mortality following head injury has beenreported 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 (33patients 47%) [11].

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 paramountimportance; 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, enthusiasticmultidisciplinary team, social workers and media personals help many unidentified patients with severe head injury in rehabilitation.

This study has both theoretical and practical relevance. The theoretical relevance is that it adds to the body of knowledge for interventions to improve care by developing an evidence-based framework structuring the activities to improve patient management in a resource limited setting [Fig. 1].

The practical relevance of the study is that it is addressing the real challenges which are striving hard to manage and sustain them towards universal access to care and treatment services. Hence, the findings from this study will help policy makers, program managers and implementers to design and implement interventions towards better management, care and improved patient outcomes.

Conclusion

Comprehensive team approach of sensitized hospital staff, society and media is need for better management of unidentified and unaccompanied head injury patients. Web based Voter list search for home address is important digital tool helping in relocation. Community sensitization towards responsibility sharing of these patients is must for early relocation/ rehabilitation for decongestion of overloaded hospitals for other patients in need. Framework development and strict adherence to strategies leads gratifying results.

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