Clinical Profile of Unknown Patients with Head Injuries in a Tertiary Care Centre in India: Clinical Profile and Outcome

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Abstract

Background: Unknown patients represent a particularly vulnerable group. They are usually neglected individuals, with improper access to proper nutrition, sanitation and health care. They often harbour numerous comorbidities that are undiagnosed and untreated at the time of presentation and the management of such patients is particularly difficult.

Objective: To analyze the clinical profile and outcome of patients admitted as 'Unknown' with Head injuries.

Setting: Institute of neurosurgery, Madras Medical College.

Subjects: Patient data was obtained by retrospectively from hospital records, records were perused from January 2014 to January 2019. Data was collected regarding patients admitted as 'Unknown' with Head Injuries.

Results: A total of 110 patients were enrolled into the study. 28 patients were found to have severe head injuries, 60 patients were found to have moderate injuries and 22 patients were found to have mild head injuries. 14 patients succumbed, 5 patients were successfully rehabilitated with their families and are on long term follow up, 61 patients were discharged to rehabilitation homes and lost to follow up. 30 patients left the hospital of their own volition.

Conclusion: Unknown patients are an often marginalised, under represented and vulnerable subset of the Head Injury population. By describing the magnitude of the problem and the peculiar difficulties seen in treating these patients, we hope, to bring these individuals to the foreground and restate that they require a particularly empathetic approach.

Keywords: Unknown; Traumatic brain injury; Outcome.

Introduction

Head injuries represent a devastating, preventable disease entity that has shown a consistent and considerable rise in Incidence over the years, especially in developing countries where the rate of growth in consumer wealth and number of vehicles has far out stripped the infrastructural investment in safety. While the exact Incidence in India is unknown, most studies in India rely on extrapolation of data available from developed countries [1]. The obvious limitation of this being the higher population density in India and the difference in local legislation. What is known is that the incidence of Head injuries is on the rise.

Unknown patients represent a particularly vulnerable group. They are usually neglected individuals, with improper access to proper nutrition, sanitation and health care. They often harbour numerous comorbidities that are undiagnosed and untreated at the time of presentation and the management of such patients

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is particularly difficult. Studies on the outcome of head injuries in such patients are sparse [2]. Further information on such patients would better help the physician to treat such patients and furthermore guide legislation and policy changes to ensure that such patients do not 'fall off the grid'.

Materials and Methods

The study was conducted at the Institute of neurosurgery, Madras Medical College after obtaining clearance from the institutional ethics committee.

Patient data was obtained retrospectively from hospital records, records were perused from January 2014 to January 2019.

The Aim was to analyze the clinical profile and outcome of patients admitted as 'Unknown' with Head injuries.

Participants and procedure

Upon retrospective analysis, a total of 110 patients were identified. Records of these patients was perused and data was analysed based on patient demographics, Injury characteristics and ultimate outcome.

Patients who survived were further classified based on their mode of rehabilitation i.e. patients that were successfully identified and reconnected with their support network (family or otherwise), patients discharged to Rehabilitation centers/ temporary homes and patients who left of their own free will against medical advice. The data of their outcome was further studied against available literature to ascertain if there was a significant difference in outcome after further stratifying patients based on the severity of their head injury.

Inclusion criteria

Patients with mild, moderate or severe head injuries with or without other injuries with no obvious identification at the time of admission and 24 hours post admission after an initial exhaustive search for next of kin.

Exclusion criteria

Patients who were identified and were reunited with their families within 24 hours of Injury and patients who were declared dead on arrival or died prior to resuscitation and evaluation for injuries.

Statistical Analysis

Apart from descriptive statistics, all other statistical analyses were carried out using the IBM SPSS software for Windows.

Results

A total of 110 patients were enrolled into the study, with the vast majority of patients being male (100 of 110/ 90.9%). This is as most traumatic Injuries in India affect men and that most patients with no next of kin or 'Unknown' patients are male.

The youngest patient in the study was 14 years old (approximated using limb x-rays) and the oldest patient was approximated to be around 80 years of age. The age wise distribution of patients is tabulated in Table 1.

Head injuries were classified and quantified as mild moderate and severe using the following criteria (based on the Glasgow Coma Scale/ GCS): severe (GCS<8), moderate (GCS 9–13), and minor (GCS 14–15) [3]. Using this classification, 28 patients were found to have severe head injuries, 60 patients were found to have moderate injuries and 22 patients were found to have mild head injuries. This is tabulated in Table 2.

Upon admission and treatment, 14 patients succumbed, of which 13 patients had a severe head injury at the time of admission and 1 patient had a moderate head injury but later succumbed to an underlying undiagnosed cardiomyopathy, 26 hours after admission. Of the remaining patients, 5 patients were successfully rehabilitated with their families and are on long term follow up, 61 patients were discharged to rehabilitation homes and lost to follow up. 30 patients (20 with mild head injuries and 10 with moderate) left the hospital of their own volition, against medical advice and were also lost to follow up, Table 3.

Table 1: Age wise distribution of 'Unknown patients' with Head Injuries

Age Distribution (in years)	Number of Patients
1-10	0
11-20	4
21-30	28
31-40	30
41-50	18
51-60	18
61-70	9
71-80	3
Above 80	0

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Table 2: Tabulation of patients vs presenting GCS

Presenting GCS	Number of Patients
GCS < 8	28
GCS 9-13	60
GCS 14-15	22

Table 3: Patient Outcome

Outcome	Number of Patients
Expired	14
Identified, discharged to family	5
Discharged to Rehabilitation home	61
Left against medical advice	30

Table 4: Characteristics of sustained Head Injuries

Type of Injury	Number of Patients
Epidural Hematoma	14
Subdural Hematoma	36
Contusion / Intracerebral Hematoma	17
Calvarial Fracture	7
Pneumocephalus	6
Pneumoventricle or Intraventricular Hematoma	4
Diffuse Axonal Injury	19
Mixed Lesions	7

The characteristics of the head injuries of the patient s are tabulated in Table 4.

Discussion

The category of patients listed as 'Unknown' represent an uniquely vulnerable subset of patients. These patients pose numerous challenges both in terms of their treatment parameters as well as to the treating institute. The problem is further confounded by the relative paucity of reliable data, owing to the inconsistent terminology used in literature. The burden of care for these patients rests exclusively on the treating physician and the supporting hospital. As these patients invariably are treated in government run institutions they tend to stress hospital resources in a background of already limited supplies [4].

Head injuries in these patients further compound the problem, as at the time of presentation, most of these patients are obtunded and any history of comorbid illnesses (if known) cannot be elicited and the baseline cognitive performance is unknown. This potentially leads to a dilemma and delay in treatment as the rapid neurologic exam performed in the emergency department is primarily based on the implication that the patient

had no psychomotor symptomatology prior to the inciting trauma [5]. Moreover resuscitation of these patients are also a challenge as their underlying cardio pulmonary status is unknown leading to an approximation of medication and underlying metabolic derangements are only diagnosed after a few hours, when investigations are available .This was exemplified by the loss of one patient in this study with a moderate head injury with an unreported/undiagnosed cardiomyopathy who went into cardiac failure following the initial resuscitation and subsequently succumbed.

This study revealed that a disproportionately large portion of the 'Unknown' patients were male. The reason behind this is largely unknown as no available indices for such patients exist In India and therefore it cannot be ascertained if this represents a sampling bias or is reflective of the state of events. However it was noted that most of the female patients were above the age of 60 (8 of 10 / 80%). Additionally, of the patients who were successfully reunited with their families (5 of 110), all were less than 30 years of age. It was found that the older the patient, the more difficult it was to find their place of origin and surviving family members (if any).

The pattern of injuries were consistent with high velocity impact trauma [6] and the common mode of presentation was secondary to a road traffic accident, wherein the patient was almost always the pedestrian, this likely was due to encroachment of these individuals onto roads, inebriation of the driver, inebriation of the patient or both. The mortality indices were also consistent with available literature [7], the difference being a statistically non significant decrease in patients dying of severe head injuries (global average 46 % vs 45%) [8], the possible reasons include an longer than average ICU stay, a longer than average in patient course and the fact that the primary care giver was usually a trained para medical professional.

Of the patients admitted and successfully treated, only 5 patients were successfully reunited with their family. The large majority of patients either left the hospital of their own accord or were discharged to long term care facilities. The troubling aspect of this was that these patients were subsequently lost to follow up, indicating that while they were successfully treated for their injuries, their long term rehabilitation was most likely incomplete. It is a known fact that head injuries leave lasting psychomotor and cognitive disabilities [9,10,11], that require long term treatment and follow up. The absence of such treatment likely sets up a vicious cycle, wherein the successful reintegration of the

patient to society is hampered by the additional disabilities sustained during the trauma.

The only large scale study conducted in India to date [2] cites the logistical and medical issues that are highlighted in this paper, in comparison we found a larger subset of patients that remained unidentified. The possible reasons include, the larger intake of this hospital, the larger treating radius and referral radius as well as the general growth of the Indian population since the publication of the afore mentioned article.

The paucity of data on these patients, further indicates the marginalisation of such individuals. While most hospitals do receive such patients, they are often ill equipped to deal with a problem of such a magnitude. This study emphasises the fact that a systemic redressal of the problem should be sought for at every level. Rather than considering such individuals as patients alone, the hospital should be considered as the point of first contact, wherein rehabilitation and repatriation into society can begin as the patient is being treated.

Moreover, prompt identification of such patients would be beneficial to both the treating physician and the patient, this again requires an uniform medical record system and an identification system. however the sheer magnitude of such an endeavour in a country as populous as India is probably arduous, both in terms of data acquisition and in a medicolegal stand point, especially at a time where data breaches and concerns over privacy are the norm.

Conclusion

Unknown patients are an often marginalised, under represented and vulnerable subset of the Head Injury population. By describing the magnitude of the problem and the peculiar difficulties seen in treating these patients, we hope,

to bring these individuals to the foreground and restate that they require a particularly empathetic approach.

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