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Analysis and outcome of near-hanging cases: A retrospective study in the emergency department of a tertiary care hospital in eastern India

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Abstract

Background: Hanging is one of the common modes of deliberate self-harm presenting to emergency departments (EDs) across the world. Early intervention and aggressive resuscitation can decrease the morbidity and mortality associated with near hanging. Our aim was to study the profile of patients presenting with near-hanging and their outcome to our adult ED.

Materials and Methods: Medical records of patients with age more than 15 years presenting with near hanging to the ED was reviewed retrospectively. The following profile data such as age, gender, marital status, material used for hanging, and type of hanging were collected. The information regarding the outcome of the patients from the hospital also analyzed. The data were analyzed to express the mean (\pm standard deviation) for the quantitative variables and frequency for the qualitative variables (\pm percent) using SPSS statistical software.

Results: The analysis of 2 years data from August 2014 to July 2016 revealed 77 patients reached the ED with near-Hanging. The mean age of the patients 31.1 years. Approximately, 43% were complete hanging, while rest were partial hanging. Majority of the patients used dressing materials for hanging themselves. Out of 77 patients, 64 were discharged alive while 2 patients died in the hospital and 11 were left against medical advice.

Conclusions: Hanging is still a major mode of deliberate self-harm in Eastern India both among men and women. The outcome of near-hanging is positively influenced by early admission and active treatment.

Keywords: Emergency department, hanging, suicidal hanging attempt, morbidity, mortality

Introduction

Suicide is a major public health problem more so in the low- and middle-income countries [1]. Every year, around a million people die of suicide [1]. India accounts for one the highest rates of suicide in the world [2]. In India, the common modes of suicide were ingestion of agricultural chemicals, hanging, self-immolation, and drowning [3]. The major cause of morbidity and mortality in hanging is due to hypoxic brain injury [4]. Mortality is decreased by hospital treatment in patients with near-hanging despite having low initial Glasgow coma score (GCS) score [5]. The outcome is improved by early medical intervention and aggressive resuscitation [5]. This study aims to study the profile of patients with near-hanging and their outcome to our adult emergency department (ED) of a tertiary care hospital in Eastern India.

Materials and Methods

This is a retrospective study, of patients presenting with near-hanging to the adult ED of a Medical College Hospital, Bhubaneswar, Odisha, India. All patients more than 15-year-old presenting with near hanging from August 2014 to August 2016 were included in the study. The patients were identified using the triage register of the ED. A retrospective chart review was performed on all the above said patients using the hospital's electronic medical database. The following was extracted demographics, age, sex, date of admission, type of material used, complications such as low GCS, discharge status, and duration of admission.

Statistical analysis was performed using SPSS software. Mean (standard deviation) were calculated for the continuous variables. The categorical variables were expressed in proportion and Chi-square test or Fisher's exact test was used to compare dichotomous variables. For all tests, a two-sided $P = 0.05$ or less was considered statistically significant.

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This study was approved by the Institutional Ethics committee and confidentiality was maintained using unique identifiers and by password protected data entry software with restricted users.

Results

The study was done from August 2014 to August 2016. There were a total of 135,480 ED visits of which 77 were near hanging patients. Out of 77 patients presented with near-hanging, 44 (57.1%) were males and 33 (42.9%) were females. Mean age was 31.1 years ± 0.70% of patients belong to the age group between 21 and 59 years [Table 1]. Majority of patients (84.4%) had attempted hanging for the first time and 15.6% patients attempted for the second time. Pre-existing psychiatric illness was reported by 10 (13%) of patients. Alcohol abuse was found among 17 (22.1%) of patients. Around one-third (31.6%) of patients had received some form of prehospital care [Table 1].

Table 1: Demographic data of studied population

Baseline characteristics	Total (%)
Total number of patients	77 (100)
Male	44 (57.1)
Female	33 (42.9)
Age group (years)	
15-20	16 (20.8)
21-50	54 (70.1)
>50	7 (9.1)
Pre-existing psychiatric illness	10 (13)
Number of suicidal attempts	
First attempt	65 (84.4)
Second attempt	12 (15.6)
Number of patients with coexisting alcohol abuse	17 (22.1)
Number of patients who received prehospital care	29 (37.6)

Forty-three percent of patients suspended their entire body with the noose (complete hanging) while 44 (57.1%) patients reported partial hanging in which some part of the body was in contact with the ground [Table 2]. The common materials that were used for hanging were dressing materials such as dupatta (29.9%) and saree (28.6%). Other materials used were nylon rope (22.1%), and in 16.9% of patients, the material used was not mentioned [Table 2].

Table 2: The Mode, material used and reason for hanging

	Number of patients (%)
Mode of hanging	
Complete	33 (42.9)
Partial	44 (57.1)
Materials used for hanging	
Duppatta	23 (29.9)
Saree	22 (28.6)
Rope	17 (22.1)
Curtain	2 (2.6)
Not known	11 (14.3)
Reason for hanging	
Marital disputes	11 (14.3)
Failed love affairs	5 (6.5)
Loss of employment	1 (1.3)
Financial loss	1 (1.3)
Reasons not elicited	59 (76.6)

About 76.6% of the patient’s files did not have the clear record of the reason for hanging. Among those who

provided reasons, marital dispute (14.3%) was the most common, followed by failed love affairs (6.5%). Loss of employment and financial loss were also reported by one patient in each category [Table 2].

Patients had three major complications such as seizures, pulmonary edema, and low Glasgow coma scale at the time of presentation. Out of the 77 patients, 9 presented with seizures and 23 had pulmonary edema [Figure 1]. Forty-two patients presented with a Glasgow coma score (GCS) of <9 and 20 patients had a GCS between 9 and 13 while 15 patients presented with a GCS of 14 and 15 [Figure 2]. Almost 75% of the patients required mechanical ventilation and Intensive Care Unit care. However, 40% of the patients got discharged within 2 days of admission. Only 18% of the patients required to stay in the hospital for more than 7 days. In our study population, 83% of our patients got discharged from the hospital. Only 2 patients died in the hospital. However, almost 15% of the patients left against medical advice [Table 3].

Table 3: Outcome of patients with near hanging

Discharge status	Number of patients (%)
Total patients	77 (100)
Alive	64 (83.1)
Dead	2 (2.6)
LAMA/discharge at request	11 (14.3)
Duration of hospital stay	
≤2 days	30 (39.0)
3-6 days	33 (42.9)
≥7 days	14 (18.1)
Patients requiring intensive care	
Number of patients intubated and admitted to ICU	57 (74.0)
Not intubated and discharged after observation	20 (26.0)

LAMA – Left against medical advice; ICU – Intensive Care Unit

Discussion

The objective of this study was to describe the demographic features, mode of hanging, complications, and outcome of near hanging patients presenting to a tertiary care hospital in Eastern India. Less than one percent of our ED visits were due to near hanging, but still, a significant number when compared to other published data in the literature. In this study, the male: female ratio was 1.33 with a male predominance (57.1%) while a study published from India shows that there was an overall female preponderance in suicides [2]. Suicide by hanging was the second most common method of suicide in India and was the preferred method among young married females and unmarried males [2, 3]. The average age in our study was 31.1 years while the common age group reported was between 15 and 29 years in studies published from Eastern India [3]. In our study, 70% of patients were in the age group between 21 and 50 years, 20% of patients were between 15 and 20 years and around 10% were aged 51 years and above [Table 1]. Mostly, young and middle-aged patients resorted to near-hanging in this study. The reason for suicidal hanging were many and had variations from country to country. Alcohol abuse, interpersonal disputes, impulsive personalities, financial losses, academic, and romantic failures were the common reasons reported earlier [2, 3]. In our study, the reasons reported were marital disputes, failed love affairs, loss of employment, and financial loss [Table 2]. Since this is a

retrospective study the exact reason for hanging was not recorded in most cases.

The common mode of hanging was partial with some committed complete hanging with full suspension above the ground. The period of suspension was not studied due to the retrospective nature of this study. The common materials used for hanging were dressing material like dupatta, saree, etc. and common household materials such as rope and curtains [Table 2]. A study published from Nepal reports partial hanging as the common mode of hanging and household materials such as rope, bed sheets, and shawl being used for hanging [4]. A study from central India on completed hangings reported complete hanging as the common mode and nylon rope as the common material used [5].

One study published that around one-third of patients presented with a very low Glasgow coma scale (GCS) of ≤ 8 and prognosis was favorable even when they had low GCS at presentation to the hospital [6]. In this study, 80% of patients presented with low GCS of 13 and below, of which 55% of them had very low GCS of 8 or less and our outcome of 83.1% being discharged alive confirms the findings of one study [7]. One of the major causes of morbidity in near-hanging patients is hypoxic encephalopathy as reported by Sane *et al* [8]. Hypoxia to the brain results in seizures, one of the common complications of near-hanging. Around 10% of patients in this study had seizures either before coming to the hospital or during their stay in the ED. Pulmonary edema is another well-recognized complication in near hanging victims [7, 8]. One-third (29.5%) of patients in this study had pulmonary edema at presentation. Injury to the vertebral artery, status epilepticus, acute respiratory distress syndrome, cervical spinal cord injuries, and tracheal injuries are other rare complications of near hanging reported in the past [9-11]. Our study had none of the above mentioned rare complications recorded.

The mortality of near hanging victims who reached hospital varied from 21% in a study published from Texas, USA to 15% from another study done in the USA [12, 13]. We report a mortality of 2.6%. Majority (83.1%) patients in this study survived till hospital discharge. Around 14% of patients left against medical advice and the reasons for which could not be ascertained due to the retrospective nature of this study. The duration of hospital stay was < 2 days for 39% of patients while only 18% needed hospital stay of more than a week. Even though 74% of patients needed admission to intensive care unit with interventions such as intubation and mechanical ventilation the duration of hospital stay was < 2 days among 39% of them. This proves that despite the low sensorium and poor clinical condition at presentation successful resuscitation results in good outcome. Around one-fourth of near-hanging patients needed only observation and subsequent discharge. Gunnell *et al*. published a review on near-hanging which insists that hospital treatment improves survival [14].

Psychiatric assessment in ED of those with various modes of deliberate self-harm identified those with strong intent, on-going depressive episodes, borderline personalities, and helped to screen for risk of further attempts [15]. Psychiatric assessment and follow-up helped in recommending targeted interventions both at the individual level and at the community level [16]. In our department, all patients with a history of deliberate of self-harm who are stable are

counselled by a social worker. All patients with nearhanging were referred for further evaluation by psychiatrists post-discharge.

Conclusion

Hospital care of near hanging patients can positively affect their outcome. Active intervention with symptomatic management of common complications such as low sensorium, seizures, and pulmonary edema can further improve the outcome. Further studies on reasons for hanging will provide valuable information which can be used for prevention and screening. The retrospective nature of this study did not provide information into the reasons for hanging. The lack of follow-up information is another limitation to study the long-term outcomes.

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