

A Retrospective Study of Injury Pattern & Analysis of Its Outcome In Patients presenting to Emergency Department after Near hanging

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Abstract

Near hanging is one of the common modes of suicidal methods presenting to the A&E department. Despite hanging having high fatality rate, survival is possible with early prompt intervention & resuscitation of the victim. To study the injury pattern & analysis of its outcome in near hanging victims presenting to emergency department. Medical records of 30 patients aged between 15&50 years was reviewed retrospectively. Information regarding age, gender, marital status & material used was noted. Outcome of those patients were analyzed maintaining strict confidentiality. Female gender accounted for 16 patients & 14 were males. 54% of patients presented to ED with complete hanging & 46% with partial hanging. 80% (24) patients had a coma scale of (GCS) <8 & all of them required mechanical ventilator support. 60% (18) required <2 days of ventilation, 4 patients for 3-6 days & 2 patients had >7 days of ventilator support. Co-morbidities associated were alcohol abuse, seizure disorder, drug abuse, & opioid dependence with uncomplicated withdrawal. Outcome in 66% of patients was good were discharged with minimal or no neurological deficits, 10% died & 24% got discharged against medical advice. Probable cause of death was post near hanging cardiac arrest, hypoxic ischemic injury, seizures, severe metabolic acidosis & brain death. Longer hanging time with severe injury pattern had bad prognosis with increase in morbidity & mortality. However, in spite of low GCS active intervention, resuscitation & aggressive management improved the outcome.

Keywords: Confidentiality; Neurological; Resuscitation.

Introduction

Victims of near hanging suicide are a major public health issue & are being increasingly seen in A&E department. India accounts for one of the highest rates in the world. Neurological outcome varies from death, permanent hypoxic brain damage to complete recovery.

This was a retrospective observational study done to analyze the injury pattern & outcome in patients presenting to ED after near hanging.

Materials & Methods

Patients presenting with near hanging to the ED were analyzed for demographics, age, gender,



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duration of hanging, injury pattern & outcomes after approval. from ethics committee of the hospital. Patients' confidentiality was maintained.

Results

Medical records of 30 patient were reviewed aged > 15 yrs to 50 yrs. Majority of the patients (70%) were aged between 21-50 yrs Female gender accounted for 16 nos & males 14 (Fig. 1).

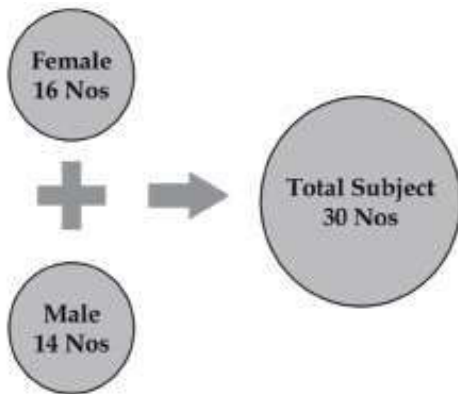


Fig.1: Gender distribution in the study.

54% (16 patients) of the victims presented to the ED with complete hanging & 46% (14) with partial hanging (Fig.2).

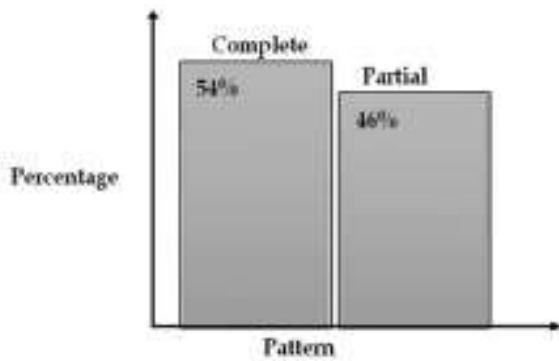


Fig.2: Hanging Pattern.

80% (24 patients) had coma scale of <8 & all of them required mechanical ventilator support. Majority of them presented with a hanging time ranging from 2 to <10 mins/minutes, however few of them presented in post cardiac arrest status & seizures had hanging time of 10 mins/minutes & more. 63% used dupatta /saree as a material to hang, only 5 of them made use of a nylon rope / towel.

60% (18 patients) of complete hanging patients required <2days of mechanical ventilator support, however 4 patients required between 3 to 6 Days & 2 patients required more than 7 days of ventilator

support (Fig. 3 & 4).

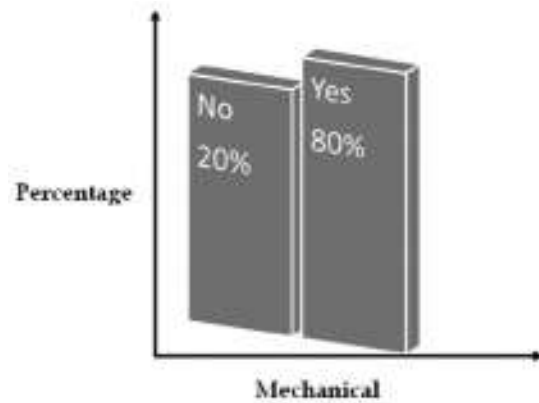


Fig.3: Need for Mechanical Ventilation.

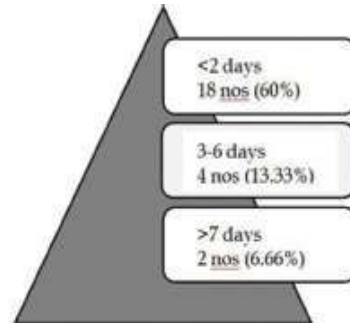


Fig. 4: Duration of Ventilatory Support.

Longest hospital stay was 53 days of one patient. outcome of the patients with near hanging was good in 66% of the patients (20) who got discharged with minimal /no neurological deficits. 10% (3 patients) died & 7 patients got discharged against medical advice probable cause of death was post near hanging cardiac arrest, hypoxic ischemic injury, seizures, severe metabolic acidosis & lactic acidosis, brain death (Fig.5).

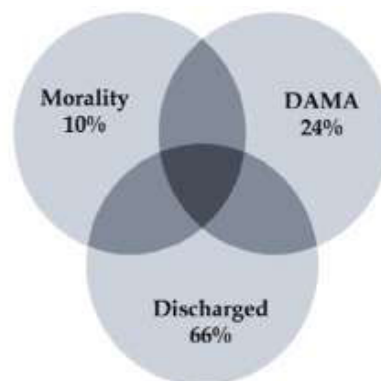


Fig. 5: Outcome

Co-morbidities associated with hanging were alcohol abuse, seizure disorder, drug abuse, opioid dependence with uncomplicated withdrawal.

Following findings were noted in the study group,

- Atlanto-axial subluxation (MRI finding) seen in a patient on treatment for seizures associated with rhabdomyolysis.
- Cervical spine mild disc bulge resulting in neuropathy / neuropraxia & foot drop.
- PRES with hypoxic encephalopathy
- Multiple infarcts in lentiform nucleus, thalamus & basal ganglia
- Seizures & hypoxic encephalopathy
- Commonest findings were ligature marks around the neck, abrasions, echymotic patches & conjunctival hemorrhages.

Discussion

Death in hanging is caused by pressure induced neck structure injuries or spinal cord trauma depending on body weight & falling from height (1). According to a study conducted by Gandhi et al it was observed that 72% of the patients were males & average age was 37yrs. (2). Our study showed female predominance (53.3%) compared to males' probable reason being increase incidence of deliberate self-harm seen in females compared to males as per study conducted by Hawton K et al (7) majority of the patients (70%) were between 21-50 years of age.

In our study 54% of the patients presented to the emergency with complete hanging & 46% with partial hanging. Initial GCS evaluation & assessment in terms of morbidity & mortality was made on arrival to the ED. In our study survival rate was 66% in patients with GCS < 8, all of them were mechanically ventilated & discharged with minimal or no neurological deficits. Salim et al in their study noted that 1/3rd of patients with GCS < 8 had favorable prognosis (3). Ganesan P et al in their study noted 55% of patients with GCS < 8 with an overall outcome of 83.1% were discharged alive (4).

According to Sane et al (5) major cause of morbidity & mortality was hypoxic encephalopathy & seizures. In our study 43% of patients with h/o near hanging >3-5 mins/minutes of hanging time in witnessed cases showed hypoxic encephalopathy confirmed by imaging studies. Priya Ganesan et al (4) reported seizures in 10% of patients either before or after coming to hospital in ED. In our study 4 patients (13%) had seizures at the time of arrival at the ED & one of them was a patient of seizure disorder.

4 patients (13.2%) presented to the ED in post cardiac arrest status achieved ROSC in the ED (one patient died after 30 mins/minutes of admission subsequently following cardiac arrest & 3 patients got discharged against medical advice with regards to poor prognosis, one of them diagnosed as brain dead following hypoxia, seizures & >30 mins/minutes of time to hospital) The suicide attempt was under the influence of alcohol & drug abuse (opioid dependence) in 3 & 1 patient respectively.

Rare complications like atlanto-axial subluxation, PRES, cervical cord compression & cervical spine disc bulge were noted in our study, however according to Mehmet Besir Yildirim et al 14% of the patients in their study had cervical spine # (6). No such complications were mentioned in the study conducted by Priya Ganesan et al.

Mortality of near hanging victims who reached the hospital was 10% & those who got discharged against medical advice was 21% reason not available because of retrospective study pattern. In the study conducted by Priya Ganesan et al the mortality was 2.6% & 14% got discharged against medical advice. 80% of our study population required mechanical ventilation & ICU stay, 18 patients had < 2 days, 4 patients between 3 to 6 days & 2 patients for > 7 days of mechanical ventilator support. longest hospital stay & mechanical ventilatory support on tracheostomy was required by only one patient for 53 days who presented to ED in post cardiac arrest status, HIE with H/O complete hanging for >20 mins/minutes. Priya Ganesan et al noted 74% of the study population needed mechanical ventilation & ICU stay, only 39% needed ventilatory support for < 2 days.

Hanging time is closely associated to mortality, longer the hanging time increases the brain injury by hypoxia.

This study shows that despite low GCS & poor clinical outcomes at the time of presentation to ED successful resuscitation & aggressive intensive care management improves survival outcome. Socio-economic factors & marital status played a significant risk factor for suicide.

Limitations

Larger sample size needed for better analysis of morbidity & mortality contributing factors. Lack of follow up information to study long term outcomes.

Conclusions

Hanging time is closely related to the outcome, longer the duration of hanging the rate of morbidity & mortality increases. Active intervention with aggressive management protocols can further improve the outcome.

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