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To Study the epidemiology and management of neck injuries in a private teaching hospital, Siddipet District, South India

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Abstract
Introduction: Neck injuries vary in extent, depth, and causes. They may be intentional or accidental. Neck injuries are potentially devastating and associated with the substantial physical, emotional, and financial burden on the community and hospital resources.1
Methodology: Hospital-based prospective observational study conducted in RVM Institute of Medical Sciences and Research Centre, Telangana, India. Done over for a period of one year (December 2018 – December 2019).
Results: Out of 39 cases, 24 are males constituting around 80 %, and 6 cases are female 20% population with Male to female ratio of 4:1. The most common cause of neck injury was suicide (23%), followed by homicide (37%), road traffic accident (43%). Road traffic accidents are more common in males and homicides among females. The common source observed in this study was 20% used Razorblade, 36.66 % used a knife, and 16.66% used a glass piece and axe to inflict the neck wound. Complications observed in this study are hypertrophied scar among 6 patients and permanent tracheostomy in 6 cases.
Conclusion: A Significant number of neck injury cases observed in this study were due to road traffic accidents, social awareness regarding road traffic accidents has to be implanted in the general public to reduce the road traffic accidents.

Keywords: Neck Injuries, Road Traffic Accidents, Tracheostomy

Introduction

Neck trauma causes morbidity due to prolonged hospitalization, costly health care, loss of productivity and reduced quality of life and above all death [1, 2]. The etiology of neck injuries can be broadly divided into suicidal, homicidal or accidental in occurrence [3, 4]. Road traffic accident and fall injuries are common in accidental neck injuries [5].Globally, neck injuries account for approximately 5% to 10% of all traumatic injuries with multiple structures being injured in 30% of patients [6, 7]. However, in developing countries there is increased incidence [8]. Injuries to the neck can be challenging to treat. Management of this injuries requires a multidisciplinary approach which consists of the otolaryngologists, the vascular surgeons, the anaesthetists and the psychiatrists [9]. Aim and objective of this study is to know the various epidemiological factors in relation to neck injuries and appropriate management of this injuries.

Methodology

Hospital based prospective observational study conducted in RVM Institute of Medical Sciences and Research Centre, Telangana, India. Done over a period of one year (December 2018 – December 2019). Inclusion criteria: All cases of neck injuries referred from casualty to department of ENT and head and neck surgery. Exclusion criteria: 1.Minor injuries of neck. 2. Patients unwilling to participate in the study. Data was collected using a semi-structured questionnaire which had questions on demographic profile of the patient, cause for the injury, site of the neck injury, type of the injury, presentation to hospital, time delay in the hospital arrival, duration of the hospital stay, records of mortality, treatment and outcome along with Complete clinical examination. History of injury is collected after the patient become stable. The data was compiled and analysed by standard statistical method and then presented as tables and figures.

Results

Table 1: Gender Distribution among the study population

Gender	Number	Percentage
Male	24	80
Female	6	20
Total	30	100

Out of 30 cases 24 are males constituting around 80 % and 6 cases are female 20% population with Male to female ratio of 4:1. (Table 1)

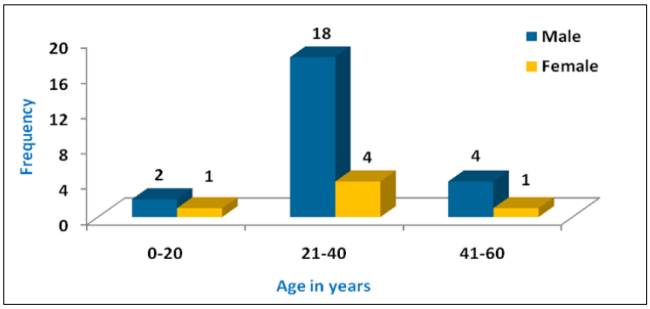

Fig 1: Male and Female distribution among the study population

Maximum number of cases was young adults aged between 21 to 40 years in both males and females. Age ranged from 10-60 years with mean age of 31.8 +/- 32.6 years. (Figure 1) In this study there is predominance of neck injuries in urban population (73%) when compared to rural population (57%)

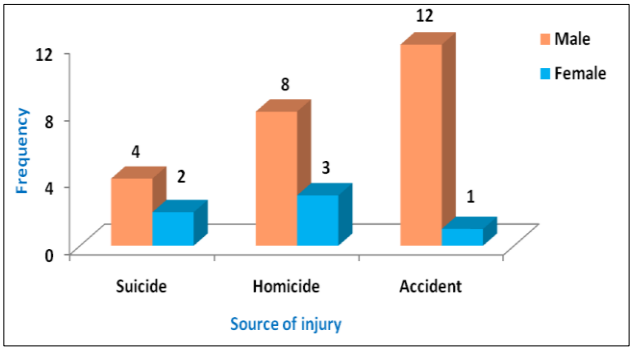

Fig 2: Cause of Injury among the study population

The most common cause of neck injury was suicide (23%), followed by homicide (37%), road traffic accident (43%). Road traffic accidents are more common in males and homicides among females. The common source observed in this study was 20% used common blade, 36.66 % used knife, and 16.66% used glass piece and axe to inflict the neck wound.

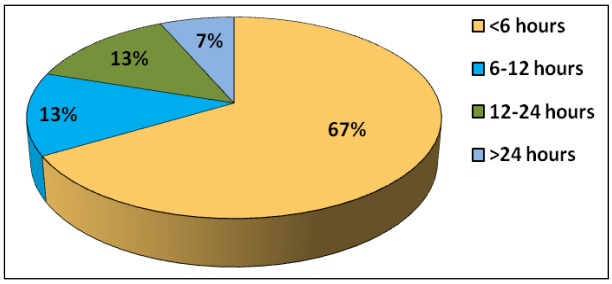

Fig 3: Time delay in (hours) for seeking medical care

The time delay in seeking medical attention in this study was observed to be 67% in less than 6 hrs following injury, whereas 13 % of patients between 6 to 12 hours after injury and 7% of patients after 24 hours of injury. (Figure 3)

The most common clinical presentation was with open wound and bleeding in 15 (50%) cases, Cut throat injury with respiratory distress were 10 (33.33%) cases. 6 cases (20%) were with cut throat injury in shock. Treatment provided at our hospital is as following, Simple wound closure was done in 15 (50%) cases. Laryngeal repair was done in 6 (20%) cases. Tracheostomy was done in 10 (33.33%) cases. Psychiatric consultation obtained for 18 (60 %) cases.

Table 2: Hospital stay among the cases for treatment

Hospital stay	Number	Percentage
Less than 7 days	14	47
7-14 days	8	27
15-21 days	6	20
More than 21 days	2	7
Total	30	100

Hospital stay was estimated and 47 % of cases discharged before 7 days and 27 % of cases had to stay for 2 weeks in the hospital where as another 20% of cases had to stay for more than 3 weeks in the hospital. (Table 2)

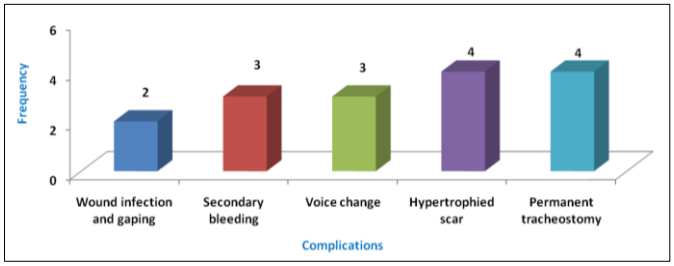

Fig 4: Complications observed among the study cases

Complications observed in this study are hypertrophied scar among 6 patients and permanent tracheostomy in 6 cases, followed by very few secondary bleeding, voice change and wound infection and gaping. (Figure 4)

Table 3: Cause of death among the study population

Cause of mortality	Number
Hemorrhagic shock	6
Aspiration pneumonitis	2
cardiopulmonary arrest	2
Total	10

Out of 30 cases, 10 cases expired and the most common cause of death reported in 6 cases was haemorrhagic shock and 2 patients died due to aspiration pneumonia and 2 due to cardiopulmonary arrest. (Table 3)

Discussion

In this study out of 30 cases 24 are males constituting 80 % and 6 cases are female 20% population with male to female ratio of 4:1.According to Panchappa *et al.* [10] males were 44 (84.3%), female were 7 (13.72%) and one male child (1.96%). Male and female ratio was 6.2:1.According to Manilal aich *et al.* [11] total 67 cut throat victims were included in the study. Total 47 male and 20 female cases were found. Male is to female ratio was 7:3.All the above studies show that neck injuries are common in male than females. In this study majority of the patients were young adults aged between 21 to 40 years in both males and females. Range from 10 to 60 years with mean age of 31.8 +/- 32.6 years. According to Panchappa *et al.* [10] age range is 4 years to 80 years (mean 25.2). Maximum numbers of patients were

Young adults aged between 20 to 40 years. According to Manilal aich *et al*. [11] majority of victims were young adult 41(61.19%), aged between 21 to 30 years. According to R Harris *et al*. [12] mean age was 30 years. Results in this study are similar to that of other studies; the common age group affected with neck injuries is 21 to 40 years. In this study suicide 28 (46.67%) is the most common mode of injury followed by homicide 19(31.67%) and accidental injuries 13 (21.66%).According to Panchappa *et al*. [61] the most common cause of cut throat injury was homicide (37%), followed by suicide (20%), road traffic accident (43%).According to Manilal aich *et al*. [11] 48 (71.64%) was due to homicidal injury,12 (17.91%) victims were due to accidental injury and only 7(10.44%) person are due to suicidal attempt. According to Rajesh kumar kundu *et al*. [13] 40 out of total (66.7%) are due to suicides and 13 out of total (21.7%) were due to homicidal injury. only 7 (11.6%) cut throat were due to accidental injury.

In this study the most common mode of neck injuries were 20 % due to common razor blade, 36.66 % used knife, 16.66 % used glass piece to inflict the neck wound. According to Manilal aich *et al.* [11] mostly injury due to the broken glass or the sharp projection of the distorted metallic part of the vehicles. There were two victim (one of them was a child) were have the history of fall over the sharp objects. The time delay in seeking medical attention in this study was observed to be 67% in less than 6 hrs following injury, whereas 13 % of patients between 6 to 12 hours after injury and 7% of patients after 24 hours of injury. According to Panchappa *et al.* [10] majority patients arrived in 6 hrs to 12 hrs following injury. According to Manilal aich *et al.* [11] majority were referred to the tertiary hospital for appropriate intervention within 24 hours. Commonest clinical presentation was with open wound and bleeding in 15 (50%) cases, Cut throat injury with respiratory distress were 10 (33.33%) cases. 6 cases (20%) were with cut throat injury in shock. According to Panchappa *et al.* [10] the common presentation was with open wound and bleeding & 19 (37.25%) cases presented with this finding. Cut throat injury with respiratory distress was 16 (31.37%) cases. According to Manilal aich *et al*. [11] A number of victims were present with open wound and active bleeding. Six patients were found with hypovolemic shock. According to Japhet m gilyoma *et al*. [14] during presentation, the majority of victims presented with open wounds (93.9%) and active bleeding (82.6%). Preoperative haemorrhagic shock and respiratory distress was recorded in 22.4% and 16.3% of cases. Treatment provided at our hospital is as following, Simple wound closure was done in 15 (50%) cases. Laryngeal repair was done in 6 (20%) cases. Tracheostomy was done in 10 (33.33%) cases. Psychiatric consultation obtained for 18 (60 %) cases. According to Panchappa *et al*. [10] wound closure was done in 35 (68.62%) cases. Laryngeal repair was done in 12 (23.52%) cases. Laryngeal and hypo pharyngeal repair done in 16 (31.37%) cases. Tracheostomy was done in 16 (31.37%) cases. Tracheal reconstruction done in 1 (1.96%) case. Blood transfusion given for 5 (9.80%) cases. Psychiatric counselling was obtained for 13 (25.49%) cases. According to Japhet m gilyoma *et al*, [14] surgical debridement, laryngeal, hypopharyneal repair and tracheostomy were the most common surgical procedures performed accounting for 93.9%, 73.5% and 70.4% of patients respectively. Blood transfusion was recorded in 45.9% Of cases. Complications observed in this study are hypertrophied scar among 6 patients and permanent tracheostomy in 6 cases, followed by very few secondary bleeding, voice change and wound infection and gaping. According to Panchappa *et al*. [10] most common causes of morbidity were wound infection, change of voice, dysphagia, tracheal stenosis and permanent tracheostomy. According to Manilal aich *et al*. [11] patients developed some form of morbidity (e, g. wound infection, scar, persistent voice changes and dysphagia, permanent tracheostomy due to laryngeal stenosis) later on. Hospital stay was estimated and 47 % of cases discharged before 7 days and 27 % of cases had to stay for 2 weeks in the hospital where as another 20% of cases had to stay for more than 3 weeks in the hospital. According to Panchappa *et al*[10] the hospital stay was on an average less than three weeks. According to Manilal aich *et al*. [11] most of the patients (73.13%) discharged within 14 days. Out of 30 cases, 10 cases expired and the most common cause of death reported in 6 cases was haemorrhagic shock and 2 patients died due to aspiration pneumonia and 2 due to cardiopulmonary arrest. According to Panchappa *et al*. [10] two patients died.

The cause of death in one patient was haemorrhagic shock and second patient died on post-operative day one due to cardiopulmonary arrest. According to Rajesh kumar kundu *et al*. [13] two patients died after attending at emergency due to carotid injury and blood loss.

Conclusion

Low-socio economic countries and developing countries like India mostly reported suicidal and homicidal neck injuries. Poverty, unemployment, and substance abuse can be some major causes of this situation. Significant number of neck injury cases in our study were due to road traffic accidents, Awareness regarding road traffic accidents and rules has to be inculcated in general public in order to reduce the road traffic accidents. According to the observations from this study it is supposed that the early appropriate interventions can save lives in majority of the cases. Stringent and appropriate measures by the government on enforcement of law and order will reduce the burden of homicidal injuries.

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