Original Article

Spectrum, Pattern and Outcome of Trauma patients admitted to Tertiary care hospital in North India

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Abstract

Introduction: Trauma is foremost reason behind the mortality and morbidity worldwide among all age groups. Trauma remains the vital public health issues worldwide and is independent of socioeconomic condition of a country. Incidence of trauma is still increasing with increase in incidence of violence, road traffic accident, assault and violence. Trauma will still remain if all medical and surgical diseases are overcome.

Aims and Objectives: The aims and objective of our study was to evaluate the spectrum, pattern, mechanism and outcome of trauma patient presenting at tertiary care hospital.

Results: Trauma patient visited to tertiary care hospital were 1926 (with 73% male and 27% female). Most common age group was 21-30 years. Most common mechanism of trauma was RTA which include 60% patient followed by fall. Most common site of injury was extremities followed by head and neck injuries. 28% of trauma patient were hospitalized. 66% of hospitalized patients were managed conservatively while 34% of the were managed surgically. 92% of the trauma patients were survived while mortality was only 8%.

Conclusions: RTA is most common form of trauma affecting most commonly young male in their third decade of life. Health education and behaviour change among the youngster about trauma may reduce the trauma injuries.

Keyword: Trauma; Injury; Tertiary care hospital; Road traffic accident; Hospitalization

Introduction

Any physical injury caused by violence or any other force is known as trauma. Trauma shifts the patient into potential risk of death or disability.

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Trauma is foremost reason behind the mortality and morbidity worldwide among all age groups[1]. WHO reported that trauma is responsible for more than 5 million of annual death which is even more than the combined death caused by tuberculosis, malaria and HIV. Trauma remains the vital public health issues worldwide and is independent of socioeconomic blossoming[2]. On the basis of cultural, developmental and geographical characteristic of a country, there is difference in pattern of trauma that reached to the treating hospitals. Hence epidemiology of trauma patients in India will differ from south to north India and from urban to rural areas[3]. Despite of immense significance, trauma is still considering as one of the neglected diseases of modern society. Incidence of trauma is still increasing since the incidence of violence, road traffic accident, assault and violence are increasing. Trauma will still remain if all medical and surgical diseases are overcome[4].

Keeping all these in view, the aim and objective of our study was to evaluate the spectrum, pattern, mechanism and outcome of trauma patient presenting to the tertiary care hospital in Hind Institute of Medical Sciences, Barabanki.

Material and Methods

Present study was a 3 years retrospective study based on medical records of the trauma patients who came in the emergency department at tertiary care hospital of Hind Institute of Medical Sciences, Barabanki from August 2020 to May 2023. Various demographic data such as sex, age group, mechanism of trauma, distribution of injuries on body part, hospitalization of trauma patient and their management, average time of stay in hospital, time period between trauma and arrival at hospital and outcome of trauma patient. Medical records having insufficient data (such as patient absconded, referred or LAMA) were excluded from the study. Data entered in excel sheet and were quantified and analysed statistically using SPSS (Statistical Package for the Social Sciences).

Results

In the present study total number of trauma patient visited to tertiary care hospital with mentioned exclusion criteria were 1926 with 73% male (total number 14114) and 27% female (total number 512) (Figure no.1). Most common age group of trauma patient in this study was 21-30 years (44%) (Table no. 1, Figure no.2). Most common mechanism of trauma in the present study was RTA (Road Traffic Accident) which include 60% (total number of patients 1155 out of 1926) of trauma patient followed by fall (Table no. 2). Among various types of falls, fall from height was most common with 270 patients followed by fall on ground (Figure no. 3). In the present study most common site of injury in the body was lower limb followed by upper limb followed by head and neck injuries (Figure no. 4).Out of 1926 trauma patients who came to the hospital only 28% of trauma patient were hospitalized (Figure no.5). Among the hospitalized patients 66% of patients were managed conservatively while 34% of the trauma patients were managed surgically (Figure 6). Among the hospitalized patients 25% of trauma patients stay for more than 3 days in the hospital while 75% of trauma patients stay for less than 3 days in the hospital (Figure no. 7). 27.4% of patient hospitalized to the tertiary care hospital within 30 minutes of trauma incidence while 72.6% of patients hospitalized after 30 minutes of trauma incidence (Figure no. 8). In the present study 92% of the trauma patients were survived while mortality was 8% (Figure no. 9)

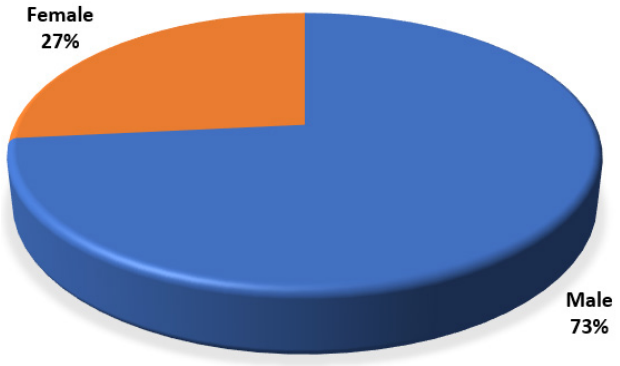

Figure 1. Distribution of sex of trauma patient

Table 1. Age group distribution of trauma patient

Age group (Years)	Number of trauma patient	Percentage
<10	83	4.3
11-20	462	24
21-30	848	44
31-40	250	13
41-50	158	8.2
51-60	73	3.8
>60	52	2.7

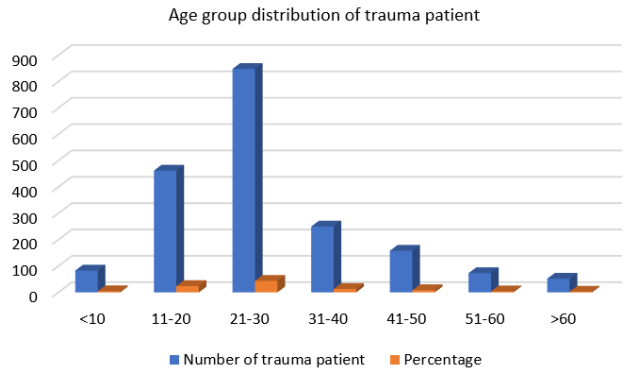

Figure 2. Age group distribution of trauma patient

Table 2. Various mechanism of Trauma

Mechanism of trauma	Number of patients	Percentage
Fall	525	27.2
Trauma due to animal	108	5.6
RTA	1155	60
Machine injuries	54	2.8
Violence/Assault	38	2
Other	46	2.4

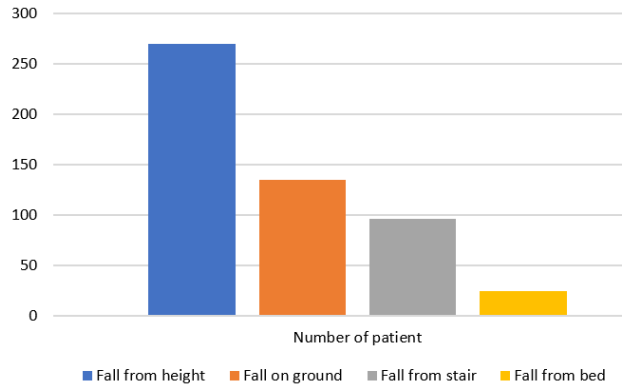

Figure 3. Various types of falls of trauma patient

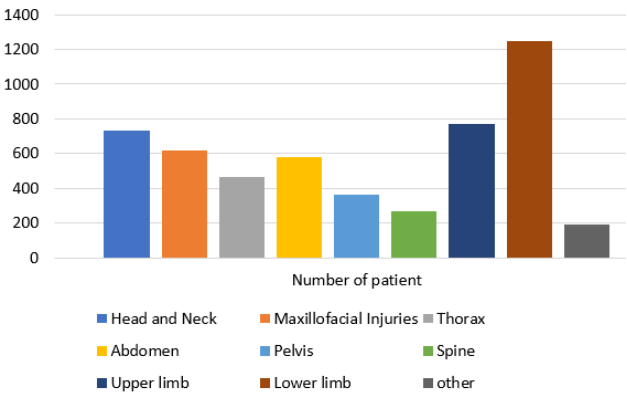

Figure 4. Distribution of injuries on various body parts

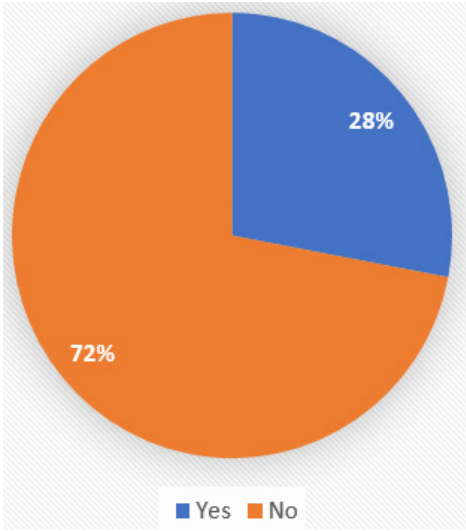

Figure 5. Hospitalization of trauma patient

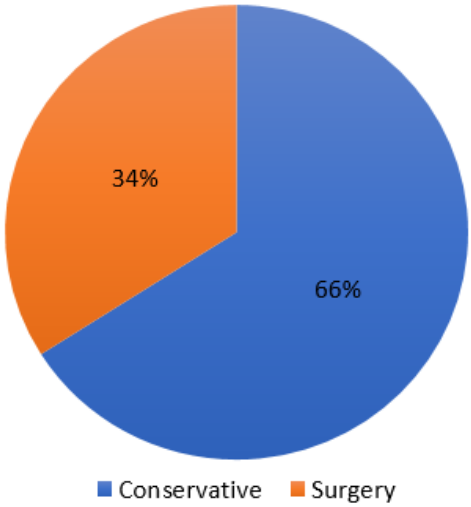

Figure 6. Trauma Management of hospitalized patient

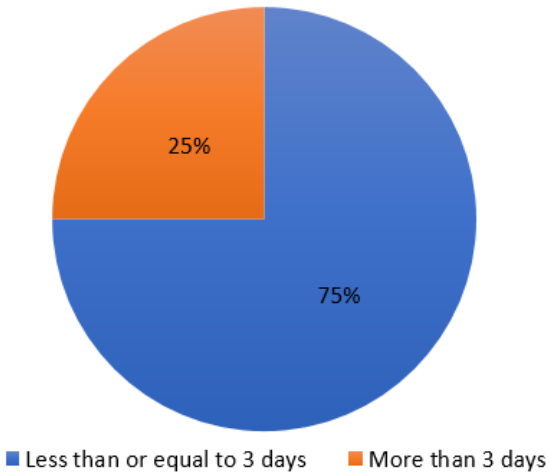

Figure 7. Average time of stay of trauma patient in the hospital

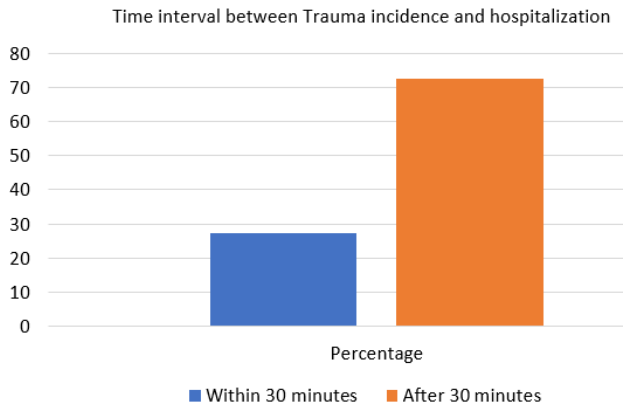

Figure 8. Time interval between Trauma incidence and hospitalization

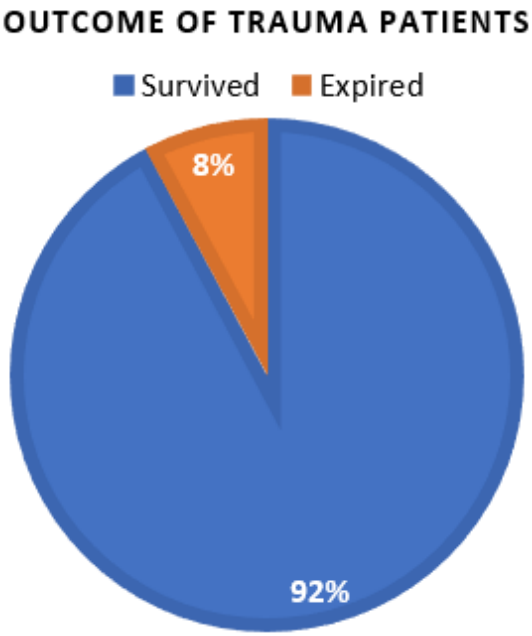

Figure 9. Outcome of trauma patients coming to tertiary care hospital

Discussion

Present study revealed that male (73%) were predominant victim of trauma which was similar with the study done by Singh et al in rural setting of central Uttar Pradesh[5], Jain et al in eastern Uttar Pradesh[3], Kanwar et al in Himanchal Pradesh[4] and many other studies[6,7,8,9].In the present study most common age group for trauma was 21-30 years which account for 44% of total trauma patients and was similar with the study of Bayissa et al[2], Jain et al[3], Kanwar et al[4] Singh et al[5] and study of Ndubuisi O onyemaechi in Nigeria[9]. Reasons for male dominance and more trauma for this age group is as a greater number of vehicles run by male and more outdoor work along with involvement of risky activities by male. Male are often exposed to agricultural and occupational hazards since they are earning members of their family.

Most common mechanism of trauma in the present study was RTA followed by fall which was similar with the study of Jain et al[3], Kanwar et al[4], Singh et al[5] and Roshanaei et al in their study at regional trauma centre in Midwest of Iran[10] whereas Dosuza et al[11], Sharma et al[12], Ghimire et al[13] and Klaiselvan et al[14]in their study reported most common mechanism of injury was fall followed by RTA. Reason behind such dissimilarities may be due to difference in geographical location. Most common mode of fall in our study was due to fall from height and it may be because of easy method of self-injuries. Most of the trauma patient in the present study sustained multiple injuries. In this study lower limb was most common site of injuries followed by upper limb followed by injuries to head and neck region.So, extremities is most common site of injury followed by head and neck region. Similar finding was reported by Bolandparvaz et al[15] in South Iran region and Silver et al[16]whereas Kanwar et al[4], Eftekhar et al[17] and Moini et al[18] in their study found most common site of trauma was Head and neck injury followed by extremities. In the present study only 28% of trauma patients were hospitalized. 66% of hospitalized patient were managed conservatively whereas 34% were managed surgically. 75 % of hospitalized patient stay in hospital for less than 3 days whereas 25% of trauma patients stay in hospital for more than 3 days. Similar finding of hospitalized patients was observed by Roshanai et al[10]. In the present study 27.4% of trauma patients brought to the tertiary care hospital within 30 minutes of the incidence of trauma whereas 72.6% of trauma patients brought to hospital after 30 minutes of the incidence of trauma which was similar with the finding of Hokkam et al[1]. Reasons for early arrival of trauma patients to our tertiary care centre was due to location of Hind Institute of Medical Sciences at adjacent to national Highway (NH 27). About outcome, 92% of patients survived while only 8% of trauma victim expired in the present study. Reason for high survival and low mortality for trauma patients in our study was due to early arrival of trauma patient since the tertiary care centre located

adjacent to national highway and hence management of trauma started early.

Conclusions

Trauma become global health hazard due to increase in the process of modernization and economic expansion. RTA is most common form of trauma and the dominant victims are young male in their third decade of life. Tertiary care centres must have well trained personnel. There should be a national injury surveillance unit which can help in injury prevention action such as to improve the existing strategies or to develop new strategies or policies. Health education and behaviour change among the youngster about trauma may reduce the trauma injuries.

Conflict of Interest: Nil

Source of Funding: Nil

Ethical Clearence: Has been taken from the Institutional Ethics Committee.

Abbreviations: WHO: World Health Organization, HIV: Human Immunodeficiency Virus, LAMA: Leave against medical advice, RTA: Road traffic accident.

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