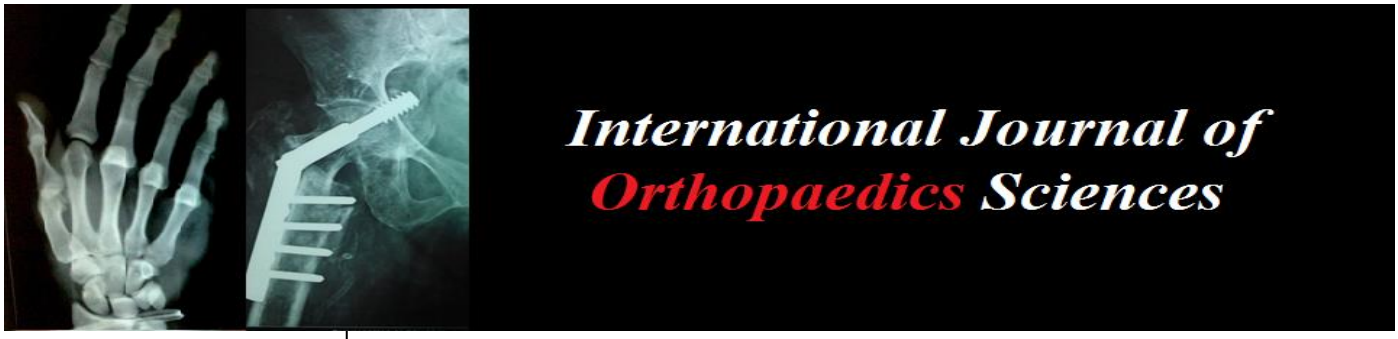

E-ISSN: 2395-1958
P-ISSN: 2706-6630
IJOS 2021; 7(3): 516-519

www.orthopaper.com
Received: 13-05-2021
Accepted: 15-06-2021

Dr. Amit Kumar Gupta
Department of Orthopedics, SMS Medical College, Jaipur, Rajasthan, India

Dr. Arun Sharma
Associate Professor, SMS Medical College, Jaipur, Rajasthan, India

Dr. Pramod Singh Chahar
Resident Doctor, SMS Medical College, Jaipur, Rajasthan, India

Dr. Preeti Garg
Resident Doctor, SMS Medical College, Jaipur, Rajasthan, India

R Asif Raza
Resident Doctor Hostel, SMS Medical College, Jaipur, Rajasthan, India

Corresponding Author:
Dr. Amit Kumar Gupta
Department of Orthopedics, SMS Medical College, Jaipur, Rajasthan, India

Assessment of prevalence of spine trauma at a tertiary care centre in Rajasthan: A CT scan based study

Dr. Amit Kumar Gupta, Dr. Arun Sharma, Dr. Pramod Singh Chahar, Dr. Preeti Garg and R Asif Raza

DOI: https://doi.org/10.22271/ortho.2021.v7.i3h.2796

Abstract
Aim: To find out the epidemiology of spine trauma involving various spinal level by categorization based on CT scan and association of various factors on spine trauma in tertiary care centre in Rajasthan
Material and Method: This is a observational study based on patients admitted in a tertiary care centre from 1st June 2019 to 31st May 2020
Results: During this study 204 patients are admitted and treated, out of which 167(81.86%) were male and 37(18.14%) were female. The most common mode of injury was Road traffic accident and most common injury was at thoracic spine level followed by lumber spine level. And most common affected age group was between 30 to 45 yrs. Most common associated injury was head injury followed by chest injury.
Conclusion: In spine trauma cases there is not much variation than developed country as there is Road traffic accident also the most common mode of injury but differs from North east India where fall from height is most common mode of injury. Road traffic accident are more common in younger age group and fall from height is common in elderly group.

Keywords: spine trauma, tertiary care, CT scan

Introduction
Traumatic spinal injury (TSI, injury spinal column, spinal cord, or both) commonly leads to significant impairment in the quality of life [1]. More than 10% of trauma patients sustain spinal injury and they have a higher mortality rate compared to other traumas [2, 3].
A spinal fracture, also called a vertebral fracture or a broken back, is a fracture affecting the vertebrae of the spinal column. Most types of spinal fractures confer a significant risk of spinal cord injury. After the immediate trauma, there is a risk of spinal cord injury (or worsening of an already injured spine) if the fracture is unstable, that is, likely to change alignment without internal or external fixation [4].
Injuries are a considerable cause of mortality and morbidity all over the world. Spinal cord injury (SCI) is a catastrophic event on a personal and family level. This injury is a great financial burden to the society because of its attendant morbidity, high costs, and time consuming treatment needs [5]. Most studies have shown that the ratio of spinal trauma among the males is higher than the females; also according to these studies people over 20 to 40 years have the highest incidence of spinal trauma.
Internationally, most of the injuries are caused by road traffic accidents (RTAs), together with low and high falls from height. Road traffic and high fall accidents are typical etiology in young patients, whereas the role of low falls and associated osteoporosis increases trauma in older population. Spinal fractures are often associated with other injuries as 30% to 55% of patients are reported to have at least one associated injury [6].
Motor vehicle crashes and falls were considered to be the 2 main causes of SCI. Directed violence, such as gunshot wounds and sporting accidents, was also responsible for some cases of cord injury. Cervical spine injuries account for most of spinal injuries in several studies [7]
Epidemiological factors of SCI in Indian scenario vary from Western countries, where major cause being fall from height. The low socioeconomic status and younger age group have a

major financial, social, and psychological impact as majority of the patients are the primary earning members of the family. In the Indian setup, as in most developing countries, very little is known about the exact incidence of SCIs. Since there is no curative treatment for SCI, prevention of SCI is paramount. Investigating the epidemiological pattern of SCI is the first step in planning for preventive strategies.

There have been few studies about the prevalence and risk factors of spinal trauma and SCI in India. However, the data of epidemiologic information in traumatic cord injury are available for most developed countries. Therefore, more research should be done to collect information concerning traumatic SCI in developing countries to design new cost-effective programs to prevent its occurrence.

In the view of above lacunae in existing literature and dearth of studies in Indian scenario and the present study was plann

Materials and Methods

This is a observational study in which analysis is done on behalf of daily data related to TSI admitted patients at tertiary care centre SMS medical college Trauma centre. After approval from institutional research review board and ethical committee, the data collection was from 1st june 2019 to 31st may 2020 means Total case in 1 year of duration. online literature search was undertaken in Pub Med library with the keyword "SCI, epidemiology, mode of injury". Journals provided significant information. brought dead patients and admitted patients in other department are excluded from study. Data are presented as number (%) or ratio.

Observations and Results

Table 1: Age wise distribution

Age group in yrs	No of cases	Percentage
0-15	9	4.41
16-30	64	31.37
31-45	66	32.35
46-60	40	19.61
61-75	22	10.78
>75	3	1.47
Total	204	100.00

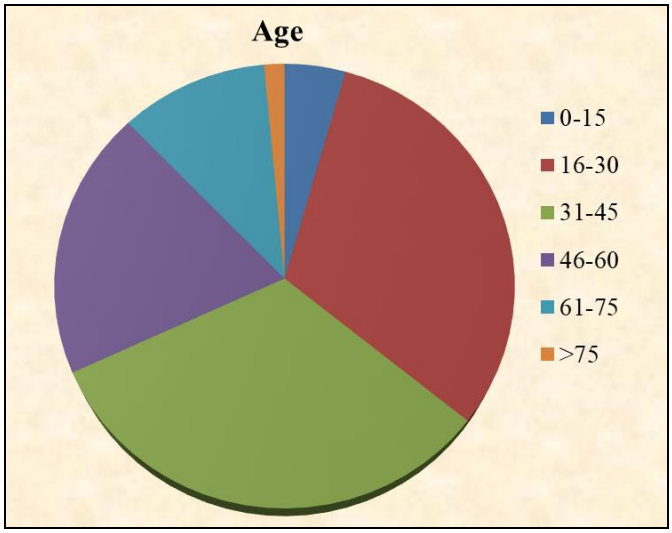

Fig 1: Age wise distribution.

In present study, Maximum patients (32.35%) were from 31-45 yrs age group followed by 31.37% patients were from 16-30 yrs, 19.61% patients were from 46-60 yrs age group.

Table 2: Sex wise distribution of study subject.

Sex	No of cases	Percentage
Male	167	81.86
Female	37	18.14
Total	204	100.00

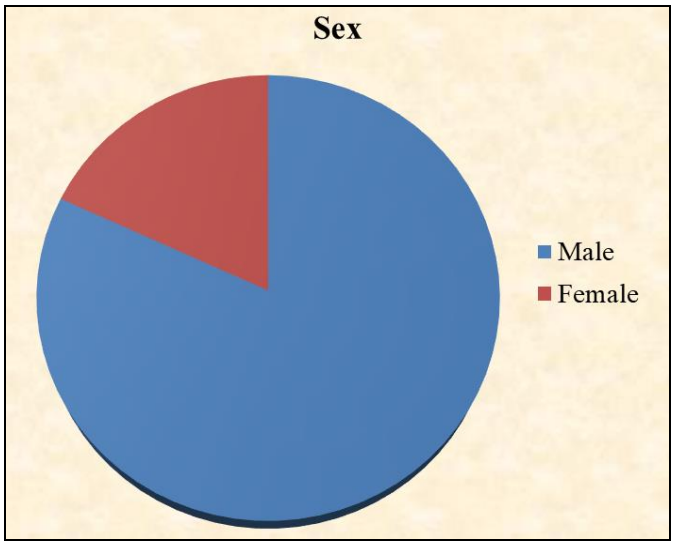

Fig 2: Sex wise distribution of study subject.

In present study, 81.86% patients were male and 18.14% patients were female.

Table 3: Mode of injury.

Mode of injury	No of cases	Percentage
RTA	99	48.53
Fall from height	98	48.03
Electric burn	4	1.96
Fall heavy object	2	0.98
Assault	1	0.49
Total	204	100.00

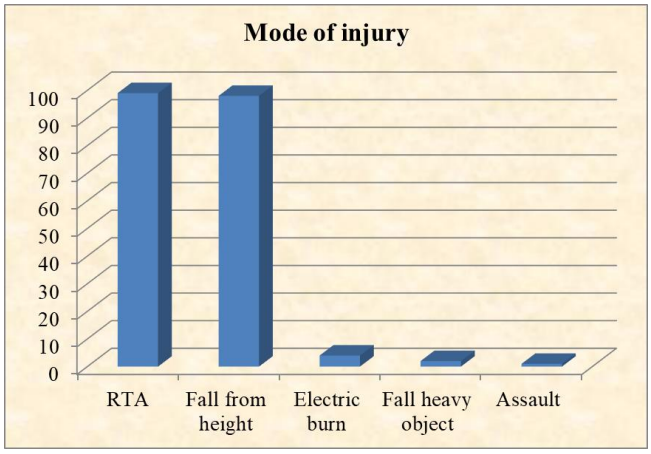

Fig 3: Mode of injury.

In present study, most common mode of injury was RTA (48.53%), fall from height (48.03%), electric burn (1.96%), fall heavy object (0.98%) and assault (0.49%).

Table 4: Level of injury

Level of injury	No of cases	Percentage
Cervical	52	25.49
Thoracic	84	41.18
Lumbar	66	32.35
Total	204	100.00

In present study, 41.18% patients were thoracic injury, 32.35% patients were lumbar injury and 2.54% patients were cervical injury.

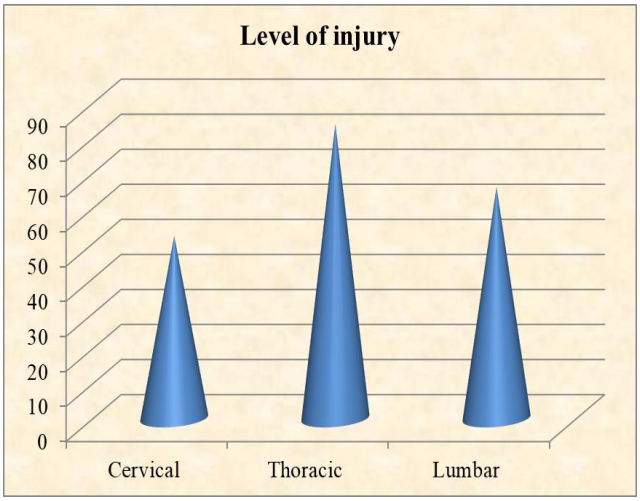

Fig 4: Level of injury

In present study, 41.18% patients were thoracic injury, 32.35% patients were lumbar injury and 2.54% patients were cervical injury.

Table 5: AIS grade wise distribution

AIS grade	No of cases	Percentage
A	4	1.96
B	66	32.35
C	33	16.18
D	67	32.84
E	34	16.67
Total	204	100.00

In present study maximum patients (32.84%) were D grade followed by 32.35% patients were B grade, 16.67% patients were E grade and 1.96% patients were A grade.

In present study 81.86% patients were male and 18.14% patients were female. An interesting finding of our study is that females constituted 40.01% of all injuries sustained in house which is considerably higher than the overall 27.5%. This may be explained by the rural background of our population where females largely stay at home compared to males who leave home for work.

In this study, most common mode of injury was Road traffic accidents (48.53%), fall from height (48.03%), electric burn (1.96%), fall heavy object (0.98%) and assault (0.49%). Falls may be due to intrinsic factors or extrinsic factors. We did not collect any data on risk factors associated with falls as this was beyond the scope of our study and therefore, we are unable to comment on whether the falls were preventable or not. Different behavior pattern in different population can affect traumatic spinal cord injury etiology and this explains the difference in aetiology reported by us and that in other countries.

This study shows that thorasic injury is most common injury (41.18%) followed by lumber injury (32.35%) and sacral injury was almost none in given time period. most common age group affected by TSI was 31 to 45 years and extremities of age group contributed minimum share in injury The mode of injury in different country may vary as violence is rare cause but common cause in African country which is not common cause [8]

Summary and Conclusion

Summary

- Maximum patients (32.35%) were from 31-45 yrs age group followed by 31.37% patients were from 16-30yrs, 19.61% patients were from 46-60 yrs age group.
- 81.86% patients were male and 18.14% patients were female.
- Most common mode of injury was RTA (48.53%), fall from height (48.03%), electric burn (1.96%), fall heavy object (0.98%) and assault (0.49%).
- 41.18% patients were thoracic injury, 32.35% patients were lumbar injury and 2.54% patients were cervical injury
- Maximum patients (32.84%) were D grade followed by 32.35% patients were B grade, 16.67% patients were E grade and 1.96% patients were A grade

Conclusion

TSI affects badly individual as well as family and society. psychological and economical problems are generated because of this type of injury. India should have a proper channel and a reporting registration system which will be summarized by every type of data (sex, mode of injury, age distribution, severity score, brought dead with particular injury) by which it will be easy in risk factors identification and preventive methods and once somebody has affected than measures for returning his life towards the normal life. There should be awareness programs in general public regarding high risk professionals, high risk age groups so they can take care in proper way themselves. If unfortunately somebody is injured than the way of transportation should be acknowledged by general public. Incidence of Road traffic accidents can be decreased by following strict traffic rules and a proper punishment and fine for drink and drive cases which is one of the important cause of overall RTA.

Reference

1. Oliver M, Inaba K, Tang A, Branco BC, Barmparas G, Schnuriger B, *et al*. The changing epidemiology of spinal trauma: a 13-year review from a Level I trauma centre. Injury 2012;43(8):1296-300. doi: 10.1016/j.injury.2012.04.021.
2. Singh A, Tetreault L, Kalsi-Ryan S, Nouri A, Fehlings MG. Global prevalence and incidence of traumatic spinal cord injury. Clin Epidemiol 2014;6:309-31. doi: 10.2147/CLEP.S68889.
3. Rahimi-Movaghar V, Saadat S, Rasouli MR, Ganji S, Ghahramani M, Zarei MR *et al*. Prevalence of spinal cord injury in Tehran, Iran. J Spinal Cord Med. 2009;32(4):428-31. doi: 10.1080/10790268.2009.11754572.
4. Rogers WK, Todd M. Acute spinal cord injury. Best Pract Res Clin Anaesthesiol 2016;30(1):27-39. doi: 10.1016/j.bpa.2015.11.003.
5. Ning GZ, Yu TQ, Feng SQ, Zhou XH, Ban DX, Liu Y, *et al*. Epidemiology of traumatic spinal cord injury in Tianjin, China. Spinal Cord. 2011;49(3):386-90. doi: 10.1038/sc.2010.130.
6. Jazayeri SB, Beygi S, Shokraneh F, Hagen EM, Rahimi-Movaghar V. Incidence of traumatic spinal cord injury worldwide: a systematic review. Eur Spine J. 2015;24(5):905-18. doi: 10.1007/s00586-014-3424-6.
7. Ning GZ, Wu Q, Li YL, Feng SQ. Epidemiology of traumatic spinal cord injury in Asia: a systematic review. J Spinal Cord Med. 2012;35(4):229-39.

8. Hart C, Williams E. Epidemiology of spinal cord injuries: a reflection of changes in South African society. Paraplegia 1994;32:709-14.