Pattern of Orthopaedic Injuries Among Patients Attending the Emergency Department in a Tertiary Care Hospital – An Analytical Study

Najmul Huda¹, Pankaj Gupta², Ajay Pant³, Asif Iqbal⁴, M Julfqar⁵, Mohd Zahid Khan⁶, Nitin Kumar Agrawal⁷
¹Associate Professor, ²Senior Resident, ³Professor and Head, ⁴Assistant Professor, ⁵Assistant Professor, ⁶Senior Resident, ⁷Assistant Professor, Department of Orthopaedics, Teerthanker Mahaveer Medical College and Research Centre, Moradabad, U.P., India

Introduction: This study was aimed at analyzing the pattern of Orthopaedic injuries among patients attending the Emergency department in a tertiary care hospital. Retrospective study was conducted in the Department of Orthopaedics, Teerthanker Mahaveer Medical College & Research Centre. Methods: The record analysis of injured patients seen at the emergency department over a 12 months period from June 2012 to may 2013 was done. The data was analyzed with special reference to the pattern of Orthopaedic injuries. Results: A total of 1110 records of injured patients that attended the emergency department were analyzed. Study showed that the majority of victims were in the age group of 11-44 years (n=909, 81.89 percent). 71.09 percent (n=789) were males and 28.9 percent (n=321) were females. Road traffic accident was the most common cause of injuries being responsible for 59.72 percent, (n=663) followed by fall from height (22.5 percent, n=247). Study revealed that the most common presentation of injuries was fracture (68.64 percent, n=762) and the most common site was lower limbs in 48.16 percent cases, (n=367). Next most common site was upper limbs (28.08 percent, n=214) followed by pelvic fracture (10.01 percent, n=77), spine fractures (8.26 percent, n=63), facial fracture (2.88 percent, n=22) & Ribs fracture (2.49 percent, n=19). There were 71.65 percent cases (n=546) of simple fracture and 28.34 percent cases (n=216) of compound fracture. There were 3.87 percent cases (n=43), of various dislocations, shoulder dislocation being the most common. Crush injury was seen in 7.5 percent cases. Most commonly associated visceral injury was the head injury in 17.20 percent cases (n=191). Conclusion: Fractures were the most common pattern of Orthopaedic injuries, frequently associated with head injuries. Research into appropriate strategies for prevention of injuries, especially RTA is required in tertiary care hospitals.

Keywords: Fracture, Orthopaedic injuries, Road traffic accidents

INTRODUCTION

Trauma registry in Uttar Pradesh, India is still in the developmental stages with relatively few published data, thus making documentation of injuries inadequate and posing great difficulty in assessing these data. Road traffic accidents are responsible for a substantial proportion of deaths & injuries and are responsible for more years of life lost than most human diseases. Road traffic accidents are a growing problem worldwide accounting for around 1.2 million deaths and over 50 million injuries annually.¹ It is expected that by the year 2020 RTA will rank third in the global burden of diseases.² The world health organization’s world health day for 2004 was dedicated to road safety.³ This level of attention to road safety underscores the global burden of road traffic injuries and the need for public health concerned towards reducing this epidemic. This study was designed to identify the characteristics of Orthopaedic injuries as seen in the Teerthanker Mahaveer Medical College & Research Centre and identify potential areas of development to enhance trauma research, an important adjunct to effective policy formulation and implementation.

METHODS

This was a retrospective study conducted at the Orthopaedics department of Teerthanker Mahaveer Medical College & Research Centre, a tertiary care hospital situated in Moradabad, Uttar Pradesh, India at National Highway-24. The patients attending the emergency department of Teerthanker Mahaveer Medical College & Research Centre during June 2012 to may 2013 were included in this study. Personal data and pattern of injuries sustained were extracted from the case records, casualty admission register and operation records. Data extraction was manually done by reviewing each case file since there was no purpose designed computerized trauma registry.

RESULTS

During the 12 months study period, 1110 injured patients were seen in the emergency department. Out of these the maximum (n=909, 81.89 percent) were in the age group of 11-44 years. There were 789 males (71.09 percent) and 321 (28.9 percent) females patients. Road
traffic accident was the most common cause of injuries being responsible for 59.72 percent (n=663) of patient injuries. Other causes were fall from height in 247 cases (22.25 %), fall from bed in 3 cases (0.27 %) fall from stairs in 8 cases (0.72 %), fall on ground in 7 cases (0.63 %), occupational injuries in 92 cases (8.28%), assault in 63 cases (5.67%), sports related in 18 cases (1.62%) and firearm injuries in 9 cases (0.8%) (Table 1, Figure 1).

Study revealed that the commonest injury was a fracture (68.64 percent, n=762) and the most common site was lower limbs in 48.16 percent cases (n=367) with the tibia/fibula being the most common bones to be fractured (32.97 percent, n=121). Next common site was upper limbs (28.08 percent, n=214) followed by pelvic fractures (10.01 percent, n=77), spine fractures (8.26 percent, n=63), facial fractures (2.88 percent, n=22) & Rib fractures (2.49 percent, n=19) (Table 2, Figure 2).

There were 71.65 percent cases (n=546) of simple fractures and 28.34 percent cases (n=216) of compound fractures (Table 3, Figure 3).

Single bone fracture was present in 46.98 percent cases (n=358), two bone fractures were present in 38.9 percent cases (n=297) and multiple fractures were seen in 14.04 percent (n=107) (Table 4, Figure 4).

There were 3.87 percent cases (n=43) of various dislocation, shoulder dislocation being the most common. Crush injury was seen in 7.5 percent case (Table 5, Figure 5).

The sprain and strain of ligaments and muscles were present in 13.78 percent cases (n=153) only laceration was present in 9.27 percent cases (n=103) contusion with intact skin were present in 4.41 percent case (n=49) Right side of the body was involved 49.54% cases followed by left 30.54 % cases and bilateral and axial skeleton in 19.90% cases. Most commonly associated visceral injury was the head injury in 23.22 percent cases (n=191). Pelvic injuries in 2.52 % cases (n=28), thoracic injuries in 1.71% cases (n=19), abdominal injuries were present in 1.53% cases (n=17), genitourinary in 1.08% cases (n=12), and. No visceral injuries were found in 75.94% cases (Table 6, Figure 6).

**DISCUSSION**

Our study shows that road traffic accidents are the commonest cause of injury in our center. This high prevalence of RTA, 59.72 percent, is noteworthy as it has implications for the provision of adequate facilities for managing road traffic injuries. This high rate is probably because of the location of the study center, situated on National Highway – 24. In the present study, other modes of injuries were falls in 23.87 percent cases (n=265), occupational injuries in 92 cases (8.28%), assault in 63 cases...
Solagberu et al.4 has reported 62.3 percent prevalence of RTA in their trauma series from Nigeria. In a study by
L.O.A. Thani, O.A. Kehinde,5 at a Nigerian teaching hospital road traffic accident was the most common cause of injuries in 90.6 percent cases. Gururaj6 conducted a study in 2004 and found that RTA was responsible for 52% of injuries, falls for 13%, occupational injuries constituted 4% & assault 3%
of total injuries. In the study by Huda N,7 the commonest mode of injury was roadside accident seen in 48.13% cases, followed by fall in 29.5%, assault in 5.4%, occupational injuries 10.5%, sports related in 4.17% and firearms in 2.08%.

In our study the slightly higher incidence of occupational injuries is because many factories are situated in proximity of the hospital.

In the present study maximum number of victims were between 11-44 years (n=909, 81.89 percent). Similar age distribution has been reported in other studies from developing countries.8-13 Considering the maximum involvement of individuals in the economically productive years, RTA may have an important economic impact. It also implies that interventions should be designed so as to target these individuals.

Majority of those injured in the present study were males (71.09 percent, n=789) and 28.9 percent (n=321) were females. This is in conformity with other studies in India8-13 and abroad.17 Preponderance of males attributed to their greater exposure to traffic and more risky behavior than females.

In the present study fractures were the most frequently seen injuries accounting for 68.64 percent (n=762) of all injuries and the most common site was lower limb in 48.16 percent cases (n=367) with the tibial/fibula being the commonest bones to be fractured (32.97 percent, n=121). A cross – sectional study in India showed that fractures were the commonest injury among the victims of nonfatal road traffic accidents, and majority of the victims were in the age group of 18-37 years.18 In China the data of 2213 patients with traffic trauma showed that fracture of extremities (53.3 Percent) occurred most often, cranio-cerebral trauma (19.4 percent) next, the followed in turn by thoraco-abdominal visceral injuries accounting for 68.64 percent (n=762) of all injuries and the most common site of fracture was a lower limb (48.2 percent).21

In the present study simple fractures were seen in 71.65% cases (n=546) and compound fractures were present in 28.34% cases (n=216). In a study by Chetna Malhotra, MM Singh,21 compound fractures were present in 31.6% cases. In the study Huda N,7 compound fractures were seen in 39.9 percent cases and simple fractures were present in 66 percent cases.

CONCLUSION

Fractures were the most common pattern of Orthopaedic injuries. They were frequently associated with other injuries especially head injuries. Research in to appropriate strategies for prevention of injuries, especially RTA, is required, but this must start with the establishment of institutional and regional trauma registries for complete documentation of relevant data.

REFERENCES

1. World Health Organization. World report on road traffic injury prevention. World Health Organization, Geneva, 2004.
2. Murary CJL, Lopez AD (Editors). Global Burden of Disease: A comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020. Harvard School of Public Health, 1996.
3. Margie Peden, et al, Eds. Injury: A leading cause of the global burden of disease. Geneva: WHO, 2002. www.who.int/world-health-day/2004/informaterial/world_report/summary_en_rev.pdf (accessed 30th July, 2004).
4. Solagberu BA, Adekanye AO, Ofoegbu CPK, Kuranga SA, Udofia US, Abdur-Rahman LO, Odelowo EOO. Clinical spectrum of trauma at a university hospital in Nigeria. Eur J Trauma 2002; 28: 365-9.
5. L.O.A. Thanni O.A. Kehinde. Trauma at nigerian teaching hospital: Pattern and documentation of presentation.
6. Gururaj G, Girish N, Issac N. KK Subhakrishna DK, final report of the project “health behavior surveillance” submitted to the ministry of health and family welfare. Govt. of India, 2004.
7. Huda N. Parekh P, Rehman M, Afzal M, Siddiquie HQ: Demographic distribution of fractures at a tertiary care hospital in western U.P. (India). A retrospective study, the Journal of Orthopaedics, Traumatology and Rehabilitation, Volume 5, 1, 2012.
8. Jha N, Srinivasa DK, Roy G, Jagdish S. Injury pattern among road traffic accident cases: A study from South India. Indian Journal of Community Medicine 2003; 28(2):85-90.
9. Ansari S, Akhdar F, Mandoorah M, Moutaery K. Causes and effects of road traffic accidents in Saudi Arabia. Public Health 2000; 114(1):37-39.
10. Romao F, Nizamo H, Mapasse D, Raﬁco MM, Jose J, Mataruca S, Efri ML, Omondio LO, Leifert T, Bicho JM. Road trafﬁc injuries in Mozambique. Inj Control Saf Promot 2003; 10(1-2):63-67.
11. Majumdar B, Karmarac R, Bose T, Dasgupta S, Basu R. Some host factors and seasonal variations in the fatal road trafﬁc accidents occurring in eastern suburban Calcutta. Indian J Public Health 1996; 40(2):46-49.
12. Maheshwari J, Mohan D. Road trafﬁc injuries in Delhi: A hospital based study. J Traffic Medicine 1989; 17(3-4):23-27.
13. Banerjee KK, Agarwal BB, Kohli A, Aggarwal NK. Study of head injury victims in fatal road trafﬁc accidents in Delhi. Indian J Med Sci 1998; 52(9):395-398.
14. Sharma BR, Harish D, Sharma V, Vij K. Road-traffic accidents- a demographic and topographic analysis. Med Sci Law 2001; 41(3):266-274.
15. Mehta SP. An epidemiological study of road trafﬁc accident cases admitted in Safdarjung Hospital, New Delhi. Indian J Med Res 1968; 56(4):456-466.
16. Ghosh PK. Epidemiological study of the victims of vehicular accidents in Delhi. J Indian Med Assoc 1992; 90(12):309-312.
17. Wick M, Muller EJ, Ekkernkamp A, Muhr G. The motorcyclist: Easy rider or easy victim? An analysis of motorcycle accidents in Germany. Am J Emerg Med 1998; 16(3):320-323.
18. G. B. Ganveer and R. R. Tiwari, “Injury pattern among nonfatal road traffic accident cases: A cross-sectional study in central India,” *Indian Journal of Medical Sciences*. 2005; 59(1):9-12.
19. X. Qi, D.-L. Yang, F. Qi, Q.-H. Zhang, and J.-P. Wang, “Statistical analysis on 2213 patients with traffic injuries from January 2003 to September 2005 in Ningbo city,” *Chinese Journal of Traumatology*. 2006; 9(4):228-233.
20. Gichuhi, “Injury pattern among non-fatal road traffic crash victims,” *East African Orthopaedic Journal*. 2007; 1:23–25.
21. Thomas V and Lavanya S., Epidemiologic profile of road traffic accident (RCT) cases admitted in a tertiary care hospital - a retrospective study in Hyderabad, Andhra Pradesh.

How to cite this article: Huda N, Gupta P, Pant A et al. Pattern of Orthopaedic injuries among patients attending the emergency department in a tertiary care hospital – An analytical study. *Acta Medica International*. 2014;1(1):10-14.

Source of Support: Nil, Conflict of Interest: None declared.