

Epidemiology of Orthopaedic Trauma Admissions over One Year at a Tertiary Level Trauma Center in Nepal

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ABSTRACT

INTRODUCTION: Traumatic orthopaedic injuries are the significant problems in healthcare system in our country. We encounter many traumatic injuries in our trauma center which have been increasing day by day. The aim of this study was to analyze the different epidemiological parameters influencing the cause of trauma attending our trauma center.

METHOD: It was a retrospective study of orthopaedic trauma cases admitted at National Trauma Center in Kathmandu over a period of one year. Age, Gender, mode of injuries, body region wise injuries were analyzed. The data was analyzed by SPSS version 20.

RESULT: Total 2848 patients of orthopaedic trauma cases were admitted. Males were more injured than females with a ratio of 1.27:1. Most common mode of injury was fall injury (48.77%) followed by road traffic accidents (33.77%). Lower limb trauma was 47.82% followed by upper limb trauma 32.44%.

CONCLUSION: Leading cause of trauma was fall injuries followed by road traffic accident. Young adult males were the most commonly affected group. Most common injury types were fractures and soft tissue injuries. Result of our study may help to identify the preventive measures and to formulate public health policy for improved healthcare delivery system.

KEY WORDS: Epidemiology, Fractures, Orthopaedic Injuries, Road Traffic Accident.

INTRODUCTION

Traumatic injuries are very common problem worldwide. Among them, traumatic orthopaedic injuries constitute major bulk.¹ Orthopaedic injuries consist of injuries to bone, joints, tendons, muscles and nerves. Trauma accounts for 9% of global mortality and poses a threat to healthcare system worldwide.² World Health Organization has estimated 90% of the injuries to occur in low and middle income countries.³ Road traffic accident falls in the top five causes of morbidity and mortality in South East Asian Countries.⁴

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Some studies have shown that traumatic injuries due to road traffic accident is major cause with a prevalence of 63.6% and is followed by fall injuries in second position with a prevalence of 29.4%.⁵ In Nepal traumatic injuries contributes to 9% of total mortality annually and it is the third leading cause of death.⁶ The average age of survival in general population has been increasing. One of the major causes of increasing orthopaedic injuries is osteoporotic bone leading to fracture due to trivial injury. Approximately 200 million people suffer from osteoporosis and approximately 8.9 million fractures are caused by osteoporotic fracture.⁷

There are very few studies regarding the epidemiological study of traumatic orthopaedic admissions in our country. The aim of this study was to gather the information regarding the magnitude of problems, high risk population, pattern of injuries and gender preponderance so that it will help to create

public health awareness and to formulate plans to mitigate this public health problem.

METHOD

This was a retrospective study done at National Trauma Center, Kathmandu from July 17, 2018 to July 16, 2019. All the patients with orthopaedic trauma admitted in the department of the orthopaedics and Trauma surgery over a period of one year were included in the study. Epidemiological study regarding age, sex, pattern of injury, anatomical site, and mode of injuries was analyzed with the help of SPSS version 20.

RESULT

All together, there were total 2848 orthopaedic trauma cases admitted over that one year period. Among them, 1595 were male and 1253 were female in a ratio of 1.27:1. Most common mode of injuries was fall injuries (48.77%) followed by road traffic accidents (33.77%). Miscellaneous mode of injuries including animal attack, animal bite comprised of 14.53%. Lower limb fracture cases were the highest in number (47.82%) followed by upper limb fracture (32.44%). Miscellaneous trauma including cut injuries, tendon injuries comprised of 10.35% of total cases.

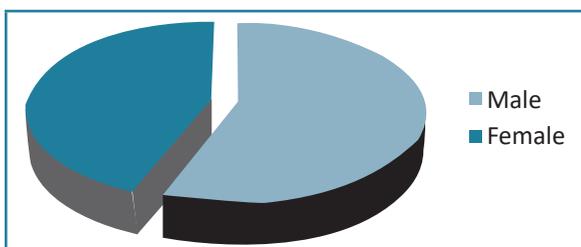


Figure 1: Gender distribution

Table 1: Age distribution

Age	Male	Female
0-4	39	19
5-14	143	56
15-19	107	48
20-29	365	234
30-39	308	282
40-49	261	224
50-59	182	165
>60	190	225
Total	1595	1253

Table 2: Mode of injury distribution

Mode of injury	Case number	Percentage of total
Fall injury	1389	48.77
Road traffic accident	962	33.77
Cut injury	61	2.14
Sports injury	33	1.15
Physical assault	20	0.7
Gunshot injury	5	0.17
Miscellaneous	414	14.53

Table 3: Type of injury distribution

Trauma	Case number	Percentage of total
Upper limb fracture	924	32.44
Lower limb fracture	1362	47.82
Spine fracture	187	6.56
Pelvic fracture	34	1.19
Soft tissue injury	46	1.61
Miscellaneous	295	10.35

DISCUSSION

The aim of our study was to analyze the epidemiology of the orthopaedic trauma related injuries admitted over the study period. Male to female ratio of admission was 1.27:1 in our study which was close to the study done by Taylor who had male to female ratio of 1.04:2 among admitted patients.⁸ But in a similar study done by Manwana, male to female ratio of admitted cases was 2.3:1¹ The common age group of admitted orthopaedic trauma cases was of third to fourth decade of male population which was similar to the study done by Manwana.¹ However there was female preponderance over the age of 60 years. It could be due to osteoporotic fractures which are more common in post-menopausal women as compared to men.^{9,10} Regarding the orthopaedic trauma admission in child age group, our number was relatively lower than the study done by Taylor.⁸ This could be due to day care treatment like closed reduction to the various orthopaedic trauma like supracondylar fracture of the humerus, radius and ulna fracture in children age group in our set up.

Our study showed the most common mode of injuries was fall injuries (48.77%) followed by road traffic

accident (33.77%) which was similar to the study done by Manwana.¹ But other studies^{11,12} show the road traffic accident as the commonest mode of injuries among the admitted cases. In our study, the reason of fall injury to be the major mode of injury could be because of the people in rural areas of Nepal are compelled to climb trees to feed tree leaves to their cattle and sustain fall from tree and there are so many hilly areas where people may sustain fall injuries. Similarly cut injuries, physical assault were also reported mode of injuries in our study. We acquainted fractures due to gunshot injuries (0.17%) in our study. Other miscellaneous injuries including animal bite, animal attack comprised of fairly large number. This high number may be due to referral of the victims from remote areas of the country since there are so many residential areas near by the jungle.

The majority of the injuries were those due to fractures in our study. Among them, 47.82% had fracture of lower limb and 32.44% had fracture of upper limb which were similar to the studies done by Manwana and Taylor.^{1,8} Spine fracture comprised of 6.56% of total admitted cases which was similar to the study done by Pan in Taiwan.¹³ Other miscellaneous traumatic injuries of rib fractures, tendon injuries comprised of 10.35%. During the study period no mortality has been recorded. The limitation of our study was we couldn't analyze the geographical distribution and its relation to mode of injury.

CONCLUSION

Our study showed that most common traumatic injuries was due to fractures and mode of injuries was fall injuries followed by road traffic accidents which occurred mostly in active young adult male. Fractures in old age groups were also in significant numbers especially in female. Our results may help in the formulation of the plans which may help to strengthen the healthcare delivery system and to formulate public health policy.

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