Original Article

Hand Injuries

Frequency of Hand Injuries at Bahawal Victoria Hospital Bahawalpur

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ABSTRACT

Objective: To determine frequency of hand injury and its major causes.
Study Design: Observational / Descriptive / Cross sectional study
Place and Duration of Study: This study was conducted at the Department of Orthopaedics, Bahawal Victoria Hospital from July 1018 to December 2018.
Materials and Methods: All cases with hand injuries were included in the study. Their cause, site and demographic data of the patient were recorded.
Results: 94 patients were included in the study. Male to female ratio was 2.3:1. Mean age of the patient was 29 years. Their ages ranged from 8-60 years.68.1% of the patients suffered from machine injury. Others suffered due to roadside accidents. An equal ration of injury was recorded from home and workplace.88.3% suffered injury to the right hand.
Conclusion: Machine injury was one of the leading causes of hand injury seen with a male predominance equally seen at home and at workplace.
Key Words: hand injury, machine, roadside accident

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INTRODUCTION

Man is dependent on hands for work to every day needs. Their injuries make him liable to disability if left untreated. In this era of industrialization and reliance on machines, hand injuries are on the increase worldwide, accounting for 10–15 percent of admissions in emergency departments in the developed countries.[1,2] According to Trybus et al hands are the most frequently injured parts of the body.[3]The injuries of hand and wrist are considered a major social and public health problem both due to the physical and mental impact, as well as to high costs of initial treatment of its sequels.[4,5]According to the National Eletronic Injury Surveillance System (NEISS), lacerations and fractures of the fingers and hands are the anatomical sites most affected in the work accidents attended in the American emergency services.[6] Injuries of hand include injuries affecting hand and wrist. Hand fractures, tendon injuries, nerve injuries and hand joint injuries were included in the study.

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Theprimary aim of this observational cross sectional study was to identify the most frequent cause of hand injury and its frequency presenting at Bahawal Victoria Hospital Bahawalpur. Secondary aims were to determine age, gender, laterality and site where injury was inflicted. So a better result based interventions could be introduced to reduce its occurrence.

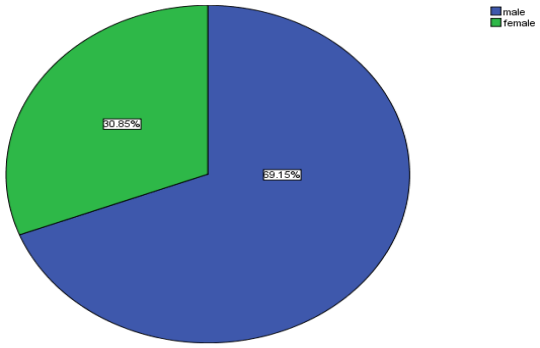
MATERIALS AND METHODS

This study was conducted in the Department of Orthopaedics Bahawal Victoria Hospital from July 2018 to December 2018. All the hand injuries including wrist joint referred to the Orthopaedics Department for management from the Accident and Emergency department after intial management were included in this study. All the minor cuts and wounds were excluded from this study. Injuries of forearm were also excluded from this study. Frequency of injury, its cause, age and gender of the patient, and the site where the injury was inflicted were recorded. Data was entered and analyzed using SPSS version 20.0.

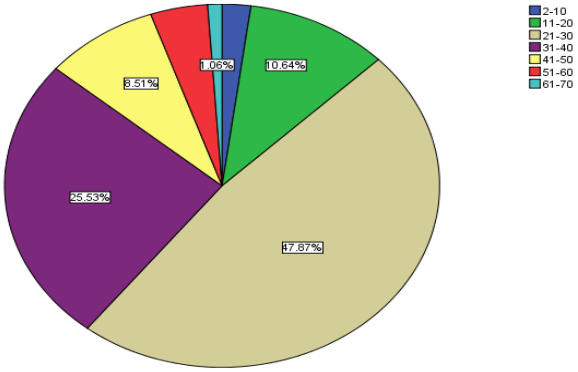
RESULTS

94 patients with hand injuries were included in this study. 69.1 % (n=65) of these patients were male and 30.9%(n=29) were female. Ages of the patient ranged from 8 years to 60 years with a mean age of29 years. Most of the patients were in their third decade of their life.

68.1% of the patients suffered from machine injury. Machines inflicted hand injury were Fodder cutter machine (Tokka), Sawmill, Mince maker, wheat



Graph No.1: Gender.



Graph No.2: Age

Table No.1: Cause

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	machine injury	64	68.1	68.1	68.1
	road traffic accident	21	22.3	22.3	90.4
	glass/gunshot /minor	3	3.2	3.2	93.6
	burn	6	6.4	6.4	100.0
	Total	94	100.0	100.0	

Table No.2: Site of Injury

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	home	36	38.3	38.3	38.3
	work	37	39.4	39.4	77.7
	road	21	22.3	22.3	100.0
	Total	94	100.0	100.0	

Figure No. 1: Machine Injury

thresher, sugarcane machine and some other minor machineries.22.3% suffered hand injuries in road traffic accidents. 6.4% suffered due to burns and 3.2% due to other minor reasons like glass and shrapnel handling.

An almost equal number of patients suffered injuries at their workplace 39.4% and at home 38.3%. A greater proportion of women suffered at home injuries.88.3% suffered injury to right hand and the rest (11.7%)to left hand.

Figur No.2: Tokka Amputation

Figure No.3: Burn Injury

Figure No.4: Sharp cut Injury

DISCUSSION

Hand is an intricately designed structure that sets man apart from rest of the animal kingdom. Man relies on hands to earn to and to fulfill basic human needs. Therefore, it is prone to injury more than other parts of the body. Any damage in its structure or function will severely compromise quality of life.Unfortunately, these injuries are exceedingly common and account for approximately one fifth of all emergency department presentations.[20, 21]

The average age found in our study is 29 years. It is in line with the other studies that observed ages less than 30.[3,7,8,9] Sahin et al. reported 28 years.[23]At this age one is inexperienced in their work and hence prone to injury. The young adult age group is the most active age group and it forms the backbone of economy. Therefore, hand injury disrupts normal human life and upheavals economy of the area.

Our study showed a male predominance with a ratio 2.3:1. A similar finding was observed by Ihekire et al.[5] However, most studies showed a male predominance with a ratio 4:1.[3,9,11] This can be easily explained by the fact that in our rural areas women work equally with men in farms and at home.

The report of hand injuries by Beaton and colleagues showed results similar to ours, where right-hand injuries were more common than left-hand injuries.[12] We observed that 88.3% of the cases had right-hand injuries. This concurs with the proportion of the right handed people in the general population.

We observed that one of the main reasons for hand injury was machine. It is pertinent to observe that in many studies undertaken in industrialized nations, machine injury is the most common cause of hand injury.[3, 9]Since the introduction of machine this is an inevitable finding. Injuries due to machines were probably due to a lack of training before using these machines or/and lack of protective wear which may contribute to the occurrence and severity of hand injuries.[22] This is in contrast to study conducted by Ihekire and his colleagues who found motor collision injury as the major source of hand injury.[10] The next major cause of hand injury we observed was road traffic accident. High energy collisions lead to hand injury. This can be easily explained by excessive usage of vehicle and increased urbanization. Makobore et al. found that most injuries occurring on the road and at work were caused by road traffic crushes and machines respectively.[22] Another major cause of hand injury we observed was burn. Burn injury is a common form of trauma that often involves the upper extremity.[13-16] Functional loss of the hands due to burn has been estimated to make up a 57% loss of function of an individual.[17] We also observed cases of hand injury due to glass. Glass is the second most likely instrument, after the knife, to be involved in hand injuries.[18]

In our study almost equal cases were recorded at home and at workplace. This is in contrast to the finding of Saxena et al. and others who observed more cases at workplace than at home.[9,19]A larger proportion of women suffered hand injuries at home. This is easily explained by our cultural norms where most women stays at home.

CONCLUSION

Hand injuries constitute a major proportion of trauma received in emergency and its main source is machine followed by road traffic accident. Its incidence is highest in third decade of life with male preponderance.Safety education, use of safety guards in machines and the enforcement of safety standards are essential to the prevention and avoidance of hand injury.Following traffic rules and better vehicles may reduce road traffic accidents.The complex treatment of the injured hand at specialist centers will allow shorter treatment duration, improved treatment results, and decreased indirect expenses.

Author's Contribution:

Concept & Design of Study:	Babar Bakht Chugtai
Drafting:	Asad Ali Bubak
Data Analysis:	Asad Ali Bubak, Zulfiqar Ali
Revisiting Critically:	Babar Bakht Chugtai, Asad Ali Bubak
Final Approval of version:	Zobia Zulfiqar

Conflict of Interest: The study has no conflict of interest to declare by any author.

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