

Research Article

Epidemiological evaluation (age, sex, mode of injury, organ injured) of two hundred and sixty two cases of trauma admitted through the emergency department of tertiary care centre and their relation to mortality

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ABSTRACT

Background: Trauma is a global phenomenon and a major cause of morbidity and mortality throughout the world. It is the disease of young and the leading cause of death in the first four decades of life. The aim of this study was to evaluate this developing country trauma centre in terms of treatment and outcome and compare it with centers around the world.

Methods: Two hundred and sixty two consecutive cases of polytrauma of adult age group admitted in casualty of Hamidia Hospital, Gandhi Medical College, Bhopal, Madhya Pradesh, India from 1 July 2014 to 1 December 2014.

Results: Trauma principally affects the young population. In our study 28.2% of the patients were between the age group 20-29 years. 29.8% of the patients were between the age group 30-39 years. In our study, males comprised 87.8% (232 out of the total 262 patients). In our study, traffic collisions were responsible for 91% of cases (238 cases out of 262). Region affected by trauma: head and neck accounted for 43.7% of injured patients followed by lower limb injuries (33.8%).

Conclusions: Out of the 262 patients included in our study 242 were discharged alive while 20 (7.6%) died. The analysis of effect of age on mortality in our study brought forward the fact that mortality increase with age and becomes nearly double for patients over 50 years of age (11.78% age specific mortality) of age for the same degree of injury severity as compared to patients below 50 years of age (5.2% of age specific mortality).

Keywords: Polytrauma, Epidemiological study, Mortality

INTRODUCTION

Trauma is the study of medical problems associated with physical injury.¹ The injury is the adverse effect of a physical force upon a person. Trauma is a global phenomenon and a major cause of morbidity and mortality throughout the world.² It is the disease of young and the leading cause of death in the first four decades of life.³ India has the 4th highest rate of road accident in the world with a reported mortality rates of severely injured

patients ranging from 7-45%.⁴⁻⁶ The aim of this study was to evaluate this developing country trauma centre in terms of treatment and outcome and compare it with centers around the world. An attempt at auditing the casualties received over a period of 6 months has been performed based on the injury and the major trauma outcome study (MTOS) initiated in the US by champion et al in 1990.^{8,9} The objective of the study was to know the age and sex distribution of injury, the mechanism of injury, region affected by injury and age-wise mortality.

METHODS

Two hundred and sixty two consecutive cases of trauma of adult age group admitted in casualty of Hamidia hospital, Gandhi medical college, Bhopal, Madhya Pradesh, India from 1 July 2014 to 1 December 2014.

Exclusion criteria

- Associated systemic diseases, e.g. congestive heart failure, chronic obstructive pulmonary disease etc. as these co-morbid diseases may affect final outcome, patients below the age of 15 years and burn patients.

Patients were clinically assessed and managed as per the ABC protocol. After stabilizing the patient, detailed history was recorded and general physical/systemic examination was done.

RESULTS

Two hundred and sixty two cases of trauma admitted through the emergency department of Gandhi medical college and hospital, Bhopal, India have been studied. The epidemiology of trauma, patient's characteristics and their relation to mortality has also been studied:

Age wise distribution

Age and Sex

Age distribution ranged from 15-74 years of age with majority of patients in 20-50 years age group. There were 230 males and 32 females thereby indicating male preponderance.

As shown in Table 1 and Figure 1 majority of patients fall in age group 20-50 years accounting for more than 65% of all trauma patients admitted in Hamidia hospital, Bhopal, India.

Table 1: Age wise distribution.

Age	No of patients	Percent
<20	26	9.9
20-29	74	28.2
30-39	78	29.8
40-49	48	18.3
50-59	22	8.4
>60	14	5.3
Total	262	100.0

Table 2: Sex wise distribution.

Sex	No of patients	Percent
Female	32	12.2
Male	230	87.8
Total	262	100.0

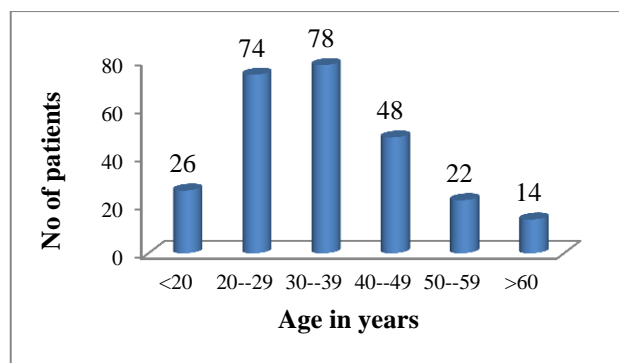


Figure 1: Age distribution of patients.

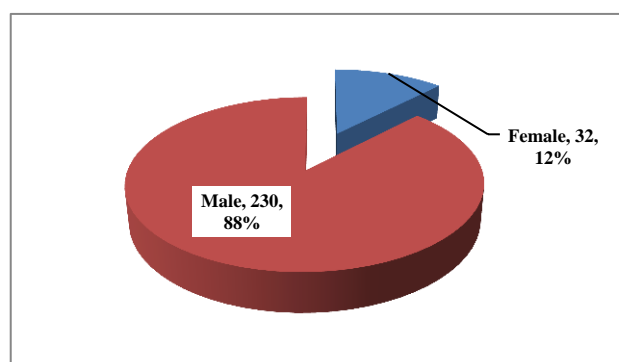


Figure 2: Sex wise distribution of patients.

Table 2 and Figure 2 shows that of the total 262 patients admitted in Hamidia hospital, Bhopal, India 230 were males and 32 were females thereby indicating a male preponderance.

Figure 3 shows that out of 262 patients included in study, 242 were discharged alive while 20 patients expired. Mortality was maximum in patients of age group >50 years (Table 4).

Table 3: Mortality rate.

No of patients	Died/survived	Percent (%)
242	Survived	92.4
20	Died	7.6
Total	262	100.0

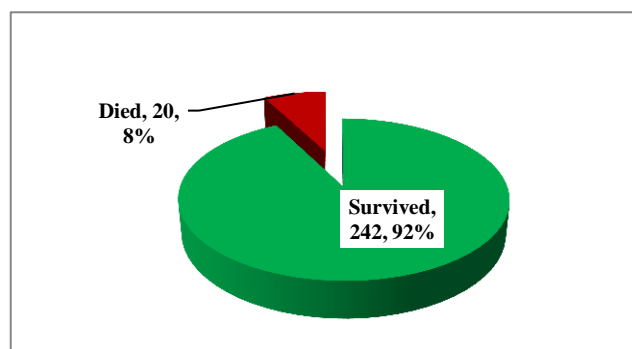
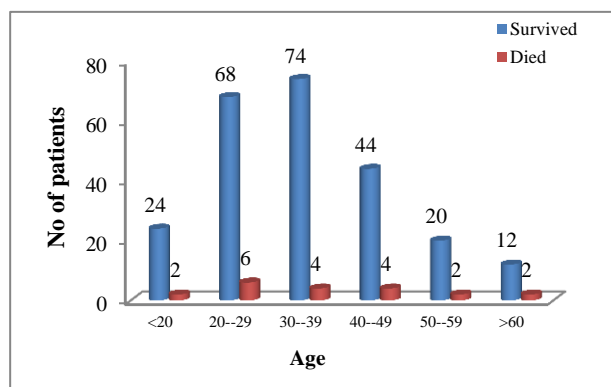


Figure 3: Mortality among patients.

Table 4: Age wise mortality.

Age	Mortality		Total
	No	Yes	
<20	24	2	26
20-29	68	6	74
30-39	74	4	78
40-49	44	4	48
50-59	20	2	22
>60	12	2	14
Total	242	20	262

**Figure 4: Age wise mortality.**

As shown in Figure 5, even though there is male preponderance among trauma patient admitted. It was a chance finding that there was no mortality among females. The p-value 0.083 which was not significant.

Road traffic injuries accounted for maximum number of trauma patients (83.9%) followed by fall from height (13.3%).

In our study most common organ injured are the extremities accounting for 42.75% cases followed by head and neck accounting for 34.73% cases.

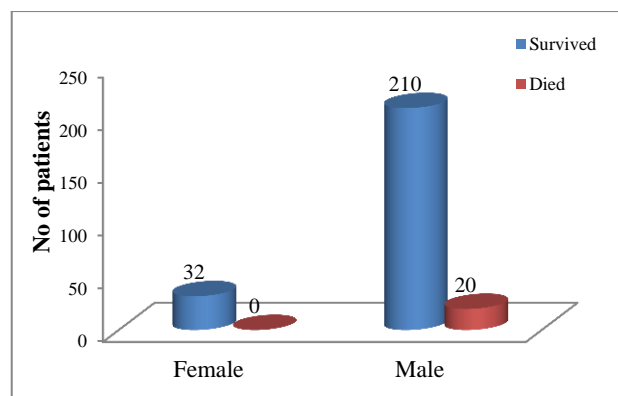
Table 5: Sex wise mortality.

Sex	Mortality		Total
	No	Yes	
Female	32	0	32
Male	210	20	230
Total	242	20	262

P=0.083; Not significant (Chi square test).

Table 6: Mode of injury.

Cause of injuries	No of patients	Percent(%)
Road traffic collision	220	83.9
Fall from height	35	13.3
Assault	5	1.9
Hit by animal	2	0.7
Total	262	100

**Figure 5: Sex wise mortality.****Table 7: Organ injured.**

Organ injured	No of patients	Percent(%)
Extremities	112	42.75
Head	91	34.73
Thorax	68	25.95
Abdomen	49	18.70

DISCUSSION

Age and Sex

Trauma principally affects the young population. In our study 28.2% of the patients were between the age group 20-29 years. 29.8% of the patients were between the age group 30-39 years. There is a marked male preponderance in all communities of the world among trauma victims. In our study, males comprised 87.8% (232 out of the total 262 patients). The results are comparable with another study done in India.

Cause of injury

In most of the studies on epidemiology of trauma, majority of the cases are due to road side collisions. In our study, traffic collisions were responsible for 91% of cases (238 cases out of 262).

Region affected by injury

Head and neck accounted for 43.7% of injured patients followed by lower limb injuries (33.8%). The findings are comparable to the results of other studies.

Mortality

Out of the 262 patients included in our study 242 were discharged alive while 20 (7.6%) died. The analysis of effect of age on mortality in our study brought forward the fact that mortality increase with age and becomes nearly double for patients over 50 years of age (11.78% age specific mortality) of age for the same degree of injury severity as compared to patients below 50 years of

age (5.2% of age specific mortality), which was comparable to results by other studies.^{7,10} Copes et al, Champion et al also reported similar findings.^{8,9}

CONCLUSION

Out of the 262 patients included in our study 242 were discharged alive while 20 (7.6%) died. The analysis of effect of age on mortality in our study brought forward the fact that mortality increase with age and becomes nearly double for patients over 50 years of age (11.78% age specific mortality) of age for the same degree of injury severity as compared to patients below 50 years of age (5.2% of age specific mortality).

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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