

## ORIGINAL RESEARCH

### A Prospective Study to Assessment of Profile of Trauma Patients in a Tertiary Care Centre

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#### ABSTRACT

**Background:** Trauma is a major cause of morbidity and mortality in both developed and developing countries. The usual causes are road traffic accidents, fall from height, assaults, occupational injuries. The present study was conducted to assess profile of trauma patients in a tertiary care centre.

**Materials and Methods:** The present study was a prospective study of trauma patients carried over a period of 3 months. Details of history and physical examination findings of all patients were recorded. Triage priority level was noted. as follows: All patients had routine blood investigations and relevant radiological tests. In-hospital outcome of all the admitted patients was noted. The recorded data was compiled, and data analysis was done.

**Results:** In the present study total trauma cases were 1800 in which 68.81% were males and 31.38% were females. Maximum trauma cases were in the age group 31-40yrs followed by 18-30 yrs. Maximum injuries were of triage priority level 2 (57.33%). In two-wheeler, four-wheeler, auto, other vehicle accidents triage priority level 2 was in maximum patients. Two-wheeler accidents were followed by pedestrian injuries. Other modes of injury included fall on level ground, fall from height, assault had maximum injuries of triage priority level 2. In workplace injuries, sports injuries maximum injuries of triage priority level 3 and in others type of injury maximum injuries of Triage priority level 1. In head, face, thorax, spine, vascular, extremity maximum injuries were of triage priority level 2. In Neck, dorsum maximum injuries were of triage level 3. In abdomen maximum injuries were of triage priority level 1.

**Conclusion:** The present study concluded that road traffic accidents and falls were the major cause of trauma and the maximum injuries were of triage level 2.

**Keywords:** Triage Priority Level, Trauma, Road Traffic Accidents.

#### INTRODUCTION

Trauma is an immediate cause of patients flowing to the emergency department of any hospital. The consequence of modernization has led to a variety of unintentional injury that has become a global epidemic.<sup>1</sup> Every year around 5.8 million people of all age and economic

groups die due to accidental injuries and violence that brings the data close to nine people every minute.<sup>2</sup>The nonfatal injury burden is even more significant, accounting for 18% of the world's health issues.<sup>2</sup> The usual causes are road traffic accidents (RTAs), fall from height, occupational injuries, and assault. According to the World Health Organization report on road safety, RTAs would be the fifth leading cause of death worldwide by the year 2030.<sup>3</sup> The majority of trauma deaths occur in the prehospital periods due to insufficient prehospital care where the first 60 min after trauma has been considered as the “golden hour” of trauma.<sup>4</sup> It is therefore important to quickly assess the severity of injury. The present study was conducted to assess profile of trauma patients in a tertiary care hospital.

## **MATERIALS AND METHODS**

The present study was a prospective study of trauma patients carried over a period of 3 months. Before the commencement of the study ethical approval was taken from the Ethical Committee of the institute and written consent was taken from the patient after explaining the study. The study recruited all trauma patients more than 18 years of age. All patients who had sustained trauma through RTA, industrial incidents, electrical injuries, fall from height or level ground, or trauma related to assault, sports, and animals were included in the study. Patients aged below 18 presenting with trauma and adult patients who were dead on arrival were excluded from the study. Details of history and physical examination findings of all patients were recorded. Demographics, mode of injury, time of injury and time of presentation, triage priority, severity of injury, type of injury, presence of vascular injury, and proportion of patients undergoing operative intervention were recorded. Triage priority level was defined as follows:

Triage priority 1: Patient with airway, breathing or circulation compromise, or head injury with GCS < 8

Triage priority 2: Patient with stable airway, breathing and circulation with long bone injuries, dislocations, stable abdomino-thoracic injuries, head injury with GCS 9, or more

Triage priority 3: Hemodynamically stable patients with minor trauma.

All patients had routine blood investigations and relevant radiological tests. The region of the body affected was noted. After initial stabilization, the patients were handed over to the necessary surgical departments for further management if necessary. Patients with minor injuries were discharged after a short observation period. In-hospital outcome of all the admitted patients was noted. The recorded data was compiled, and data analysis was done using SPSS Version 20.0 (SPSS Inc., Chicago, Illinois, USA). P-value less than 0.05 was considered statistically significant.

## **RESULTS**

In the present study total trauma cases were 1800 in which 68.81% were males and 31.38% were females. Maximum trauma cases were in the age group 31-40yrs followed by 18-30 yrs. Maximum injuries were of triage priority level 2 (57.33%). In two-wheeler, four-wheeler, auto, other vehicle accidents triage priority level 2 was in maximum patients. Two-wheeler accidents were followed by pedestrian injuries. Other modes of injury included fall on level ground, fall from height, assault had maximum injuries of triage priority level 2. In workplace injuries, sports injuries maximum injuries of triage priority level 3 and in others type of injury maximum injuries of Triage priority level 1. In head, face, thorax, spine, vascular, extremity maximum injuries were of triage priority level 2. In Neck, dorsum maximum injuries were of triage level 3. In abdomen maximum injuries were of triage priority level 1.

**Table 1: Demographic data**

| <b>Variable</b>               | <b>N(%)</b>  |
|-------------------------------|--------------|
| <b>Age distribution (yrs)</b> |              |
| <b>18-30</b>                  | 440(24.44%)  |
| <b>31-40</b>                  | 512(28.44%)  |
| <b>41-50</b>                  | 408(22.66%)  |
| <b>51-60</b>                  | 143(7.94%)   |
| <b>&gt;60</b>                 | 297(16.5%)   |
| <b>Sex distribution</b>       |              |
| <b>Male</b>                   | 1235(68.61%) |
| <b>Female</b>                 | 565(31.38%)  |
| <b>Triage priority level</b>  |              |
| <b>Priority 1</b>             | 314(17.44%)  |
| <b>Priority 2</b>             | 1032(57.33%) |
| <b>Priority 3</b>             | 454(25.22%)  |

**Table 2: Mode of injury and triage priority level**

| <b>Mode of injury</b>          | <b>Priority 1</b> | <b>Priority 2</b> | <b>Priority 3</b> |
|--------------------------------|-------------------|-------------------|-------------------|
| <b>Two-wheeler</b>             | 120               | 580               | 181               |
| <b>Four-wheeler</b>            | 24                | 70                | 12                |
| <b>Auto</b>                    | 7                 | 34                | 13                |
| <b>Other vehicle</b>           | 2                 | 3                 | 2                 |
| <b>Pedestrian</b>              | 30                | 97                | 23                |
| <b>assault</b>                 | 5                 | 32                | 6                 |
| <b>slipped on level ground</b> | 35                | 134               | 87                |
| <b>fall from height</b>        | 13                | 20                | 16                |
| <b>sports injury</b>           | 8                 | 5                 | 13                |
| <b>workplace injury</b>        | 17                | 23                | 56                |
| <b>Others</b>                  | 53                | 34                | 45                |

**Table 3: Region of the body with deep injury and triage priority level**

| <b>Mode of injury</b> | <b>Priority 1</b> | <b>Priority 2</b> | <b>Priority 3</b> |
|-----------------------|-------------------|-------------------|-------------------|
| <b>Head</b>           | 134               | 253               | 53                |
| <b>Face</b>           | 27                | 184               | 85                |
| <b>Neck</b>           | 5                 | 16                | 25                |
| <b>Dorsum</b>         | 5                 | 24                | 45                |
| <b>Thorax</b>         | 35                | 45                | 9                 |
| <b>Abdomen</b>        | 64                | 32                | 18                |
| <b>Spine</b>          | 18                | 31                | 16                |
| <b>Vascular</b>       | 11                | 15                | 8                 |
| <b>Extremity</b>      | 15                | 432               | 195               |

**DISCUSSION**

Trauma is a major problem in India with severe and wide-ranging consequences for individuals and society as a whole.<sup>5</sup>With rapid economic growth, there is a rapid increase in automobiles and industries across the length and breadth of India, and hence, an increase in the incidence of trauma cases. Although a male predominance among trauma victims is seen in most international studies; the sex ratio in our study was very heavily skewed toward

males.<sup>6-8</sup> This is explained by the fact that in our country, males are predominantly engaged in outdoor activities and operation of automobiles and hence are more vulnerable to injuries.<sup>9</sup>

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Sharma *et al.* have reported fall followed by RTI as a common mode of unintentional injury.<sup>10</sup>

A study from New Delhi reported that RTA was the most common mode of injury followed by falls and burns.<sup>11</sup>

Another study done in Madhya Pradesh reported that fall from height was the leading mode, followed by RTAs and burns.<sup>12</sup>

In two different Indian studies, the results were contradicting in that most of the victims of RTAs were pedestrians, followed by two-wheeler pillion riders.<sup>11,12</sup> In a study done in Western Iran, the authors observed that fall from height was the most common mode of injury followed by RTAs in children.<sup>13</sup>

## CONCLUSION

The present study concluded that road traffic accidents and falls were the major cause of trauma and the maximum injuries were of triage level 2.

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