Pediatric Trauma Admissions in the Sakaka Central Hospital, Al-Jouf Province, Saudi Arabia

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Objective: To examine the pattern of injuries affecting children in the Jouf region of Saudi Arabia.

Design: Analysis of data related to trauma admissions to the Sakaka Central Hospital, Al-Jouf, Saudi Arabia.

Subjects: All patients aged up to 12 years who were admitted to the Sakaka Central Hospital for various traumatic injuries during the period January 1989 to December 1991.

Main Outcome Measures: Morbidity, mortality relating to modes of trauma.

Results: A total of 479 children were admitted to the hospital, with 30.5% being under 4 years of age, and 32.6% between 4-6 years of age. Among these, 43% were females and 57% males. The most common cause of trauma was road traffic accidents (41.1%), followed by falls (33.6%). The pattern of injuries varied by age group, with road traffic accidents being most common in younger children and falls in older children.

Conclusion: Trauma is a significant cause of morbidity and mortality in children, especially in the Jouf region of Saudi Arabia. Prevention strategies need to be implemented to reduce the burden of trauma in this population.

Keywords: PaediatricTrauma.
the period Rajab 1409 AH to Jumada thani 1412 AH (January 1989 to December 1991) were analysed. Data were obtained from the central records department, the wards, and the intensive care unit (ICU). Also included were the operating theatre records. Patients who had died before arrival in the hospital or died within a few minutes of arrival in the hospital and who had not received substantial treatment were not included. The clinical files of the others were studied.

During the 3-year period, 479 children, 329 boys and 150 girls, were admitted for various forms of trauma. The ages of the patients have been categorized into three groups: under 4 years, 4–6 years, and 7–12 years. The modes of trauma were classified into road traffic accidents, falls, and other causes of trauma.

Results

There were 146 patients (30.5%) in the under 4 years age group, 154 (32.6%) in the 4–6 years age group, and 177 (36.9%) in the 7–12 years group. Fall was the most common cause of trauma (214 cases or 44.7%), followed by road traffic accidents (250 cases or 41.7%), and the remaining (65 cases or 13.6%) were due to other causes of trauma (Table 1).

Of the 65 cases of other causes of trauma, scalds and burns accounted for 43 (66.1%), including eight patients with chemical burns. The remaining 22 cases were due to animal bites. The records did not indicate any trauma attributed to child abuse.

Of the under 4-year-olds, 78 (53.4%) injuries were due to falls; these included falls from height (39 cases), falls from moving vehicles (12 cases), falls during play/games (19 cases), and other unspecified falls (eight cases). Thirty-nine cases (26.7%) were due to road traffic accidents; in 32 (82%), the child was a pedestrian while crossing the road or playing on the roadside. In these two classes of trauma, head injury was the diagnosis for admission in 61 cases (51.3%). Twenty-nine children in this age group had other causes of trauma, of which 26 (89.7%) were due to burns or scalds, and the other three had injuries falling from objects.

In the 4–6 years age group, road accidents accounted for 76 patients (48.7%), 61 males and 15 females, and falls for 62 cases (39.7%), 38 males and 24 females. Head injury only or head injury with other injuries was the indication for admission in 73 (46.8%) cases.

In the 7–12 years age group, 85 children (48%), 62 males and 23 females, had trauma from road traffic accidents. Falls accounted for 74 patients (41.8%), 53 boys and 21 girls. Other causes of trauma accounted for 18 cases (10.3%). Of the road traffic accidents, 57 cases (67%) were pedestrian victims and 28 were passengers in vehicular accidents. The indication for admission was head injury in 21 cases, and head injury with other injuries in 46 cases. Of the 74 cases in whom trauma was due to fall, nine had diagnosis of head injury only; 23 had head injury with other injuries, while 41 cases were admitted for non-head injuries being mostly bone injuries. The total number of patients in this age group who suffered fractures of bones was 92 (52.0%). These included significantly high incidences of supracondylar fracture of the humerus and fracture of both bones of the forearm.

Morbidity was related to the severity of the injury, the degree of brain affliction, and involvement of multiple systems. Most of the patients were managed in the surgical wards. The very serious cases were treated in the ICU; there were 41 (26 males, 15 females), or 8.6% of all admissions. The traumas were due to road accidents in 39 and falls in nine, and in the remaining two to burns. The diagnosis was head injury in 21 cases (51.2%), and another 18 cases had multiple injuries involving the head and one or more other systems. The indications for admissions into the ICU were respiratory distress/insufficiency, mostly in severe brain injury and multiple injuries involving the chest.

There were eight deaths. These were due to severe brain injury, in four cases, multiple system injuries in three cases, and upper extremity injuries in one case. Of these eight deaths, six were children under 4 years of age. Of the 479 patients, 73 (15.3%) patients had injuries in the chest area. This mortality is 1.67% of the total paediatric trauma admissions.

Discussion

Childhood trauma from various causes is very frequent, often causes great morbidity and significant mortality, and, therefore requires close study. The child is a pedestrian victim in most cases of road traffic accidents.1 2 An important observation about the risk of the unrestrained child inside the car, as previously stressed by Mufti,3 still needs emphasis today as does the fact that children can fall from a moving vehicle, as observed in this study. With the rapid growth in the population, and the increasing rate of acquisition of vehicles, an increase in road vehicle accidents may be expected.

There is a paucity of literature on trauma due to fall. In this study, falls constituted 44.5% of causes of injuries in the under 4-year-olds. Fall was the most frequent cause of trauma in this study, and accounted for the relatively high incidence in the under 6 years age group; also 22% of trauma patients required admission into the ICU because of falls, and falls were the cause of 22.2% of the deaths. Falls accounted for 47.5% of head

<table>
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<tr>
<th>Table 1</th>
<th>Age-related incidence of trauma</th>
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<td>Age group (years)</td>
<td>RTA</td>
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<tr>
<td>Under 4</td>
<td>39</td>
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<tr>
<td>4-6</td>
<td>76</td>
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<td>7-12</td>
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<td>TOTAL</td>
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injuries, 33% of long bone fractures, and 87.3% of upper limb bone injuries.

The treatment of trauma requires a well-organized clinical service. Most previous reports have shown the high cost involved in treatment of accident victims. Efforts are continuously being made to prevent road accidents by various safety measures and education. Play by children can be controlled by sustained caution by parents and avoidance of the road. As well as the use of seat belts, the appropriate position of the child in the vehicle is important. The incidence of under-age drivers needs to be controlled. Scalds in infants are invariably attributed to carelessness by adults. Trauma from air guns appear to be common, and the dangers of air gun injuries have been stressed previously.

This study confirms the mortality from road traffic accidents noted in previous studies. Moreover, it shows the gross morbidity due to falls in children. Analysis of the mechanisms of trauma shows that these are preventable. Intensive public education to sensitize the population to safety procedures will reduce the incidence, and minimize the socioeconomic burden incurred in the management of the injured child.

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References