

Accidental Trauma in Children

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Summary

Asindi AA, Efem SEE, Onuba O and Asuquo ME. **Accidental Trauma in Children.** *Nigerian Journal of Paediatrics* 1986; 13:77. Accidents constituted 18% of all childhood emergencies during a 12-month period at the University of Calabar Teaching Hospital, Calabar. Children in the age range 5-9 years, were at highest risk and more males than females were involved. Minor accidents such as cuts, lacerations, abrasions and bruises were the most common, followed by road traffic accidents (RTA), accidental falls, bites, burns and insertion of foreign bodies in body orifices. Only 8.9% of the patients were admitted. RTA (55.4%) and burns (32.6%) were responsible for most admissions. The overall mortality rate was 0.4%. The study indicates that childhood accidents constitute a considerable health problem in our environment. There is a need for education of drivers and pedestrians on road usage, protection of children on the road and improvement of the home environment.

Introduction

WHILE infection and malnutrition remain the leading causes of morbidity and mortality in the developing countries,¹ accidental injuries have become a major cause of death in the technologically advanced countries of the world.²⁻⁴ With the current efforts to combat hunger and eliminate childhood infectious diseases, accidents may in the near future, emerge as one of the leading problems of children in the third world countries. Unfortunately,

there is a paucity of information regarding this aspect of health in Nigeria, the only available data being from the south-western part of the country.⁵⁻⁸ This survey was therefore, undertaken to determine the pattern and magnitude of the problem in Calabar and thereby, produce the much needed information for the overall planning of health care delivery.

Subjects and Methods

The subjects of this study were children below the age of 14 years who were treated at the University of Calabar Teaching Hospital Casualty and wards, for accidental injuries during the period, January-December 1983. The data abstracted from the available records included the age and sex of victims, as well as the type and place of accidents. The total number of patients (adults and children) treated in the Casualty during the period was also noted.

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Results

During the period under review, a total of 14,996 patients of all ages were treated in the UCTH Casualty; of these, 6603 (44%) were children under the age of 14 years. Of the 6603, 1,190 (18%) presented at the Casualty on account of accidental injuries. Six hundred and ninety-four (58.3%) of these accident victims were males whilst 496 (41.7%) were females (Table I), a M/F ratio of 1.4:1. The types of accidents and the age distribution of the cases (Table II) indicate that the 5-9 years age-group was more commonly involved than any other age group.

Specific Accidents

Road Traffic Accident

Road Traffic Accident (RTA) was the single most commonly seen accident and was responsible for 286 (24%) cases. There were 167 males and 119 females. The 5-9 years age group accounted for 50% of the patients in this category (Table II). In 192 (67%) cases of RTA, the data collected from hospital records were grossly inadequate and often vague. Majority of the remaining 94 (33%) accident victims were pedestrians who were knocked down by cars (44 cases) and motorcycles (43 cases). Two children sustained injuries following falls from pedal cycles. Two female infants aged 6 months and one year respectively, who were tied to the backs of their mothers, were knocked off while being conveyed on motorcycles while a 14-year old boy fell off a moving lorry.

Falls

Falls ranked second as a cause of accidents among the patients treated. The overall male to female ratio was 1.6:1 but in the under one-year olds, the female predominated. The details of the falls were stated in only 45 (22.3%) patients.

Of these, 9 each fell from the stairways and drains/pits, 7 each fell from trees and at games, 5 fell from beds, 3 each from furnitures and storey-buildings, while 2 fell from their mothers' backs. Two children aged 15 and 12 months who fell into pit toilets presented with bruises.

Bites and Stings

Bites were most frequent in the 5-9 years (49.3%) and 10-14 years (37%) age groups (Table II). The sex ratio was about equal (M/F, 0.97:1). Bites by dogs, humans and snakes were encountered in 138 (88.4%), 11 (7%) and 4 (2.5%) patients respectively, while one (0.6%) patient each was bitten by a rat, an insect and a scorpion. The injuries inflicted by dogs were of minor degrees; none of the dogs was rabid.

Burns

Burns ranked fourth as a cause of childhood accidents in the series. The incidence was highest in the 1-4 years age group which accounted for 48% of all the burns cases seen. Scalds from liquids (hot water and soup) were encountered in 58 (55.7%) patients. Five (4.8%) were burnt by open fire while 3 (2.9%) received chemical burns. There were 4 (3.8%) cases each, of burns from hot objects and electrocution. In 30 (28.8%) patients, the circumstances of the burns were not stated. The abdominal wall and lower limbs were the most common sites involved.

Foreign bodies

The incidence of foreign body insertion into body orifices was highest in the 1-4 years age group (Table II). The nostrils (35 patients, 34.3%) followed by the ears (20 patients, 25.3%) were the commonest orifices into which objects were introduced. Eleven (14%) children swallowed various objects. In 5 (6.3%) patients, foreign bodies were found in the oropharynx while in another 5, objects were embedded in the soft tissues. Beans, corn, beads, stone and foam were objects commonly inserted into the nostrils and

TABLE I

Types of Accidents and Sex Distribution in 1,190 Children

<i>Types of Accidents</i>	<i>Male</i>	<i>Female</i>	<i>Total No of Cases</i>	<i>% of Total</i>
Road traffic accidents	167	119	286	24.0
Falls	124	78	202	17.0
Bites and stings	77	79	156	13.1
Burns	58	46	104	8.8
Foreign body insertions	46	33	79	6.6
Miscellaneous	222	141	363	30.5
Total	694	496	1,190	100.0

TABLE II

Types of Accidents and Age Distribution in 1,190 Children

<i>Types of Accidents</i>	<i>Age (Years)</i>				<i>Total</i>
	<i><1</i>	<i>1-4</i>	<i>5-9</i>	<i>10-14</i>	
Road traffic accidents	3	35	143	105	286
Falls	18	59	81	44	202
Bites and stings	1	20	77	58	156
Burns	11	50	28	15	104
Foreign Body insertions	4	50	17	8	79
Miscellaneous	2	59	144	158	363
Total	39	273	490	388	1,190

the ears while coins were commonly swallowed. Pins, needles and fish bones were embedded in the soft tissues of feet and thumbs. An insect flew into the ear of a 14-year old boy. A 5-year old boy introduced a nail into his nostril while

a 10-year old boy inserted a fish bone into his anus. Only one child presented with a foreign body in the eye. Without exception, the orifices or tissues involved were traumatised during attempts to extract the objects at home.

Miscellaneous Trauma

This category of accidents occurred in 363 (30.5%) of the children. It consisted of a wide assortment of cuts, laceration abrasions and bruises. Cuts and lacerations sustained most commonly from broken bottles, followed by knives and from other sharp-edged objects like open cans were encountered in 275 (75.7%) of the 363 patients. An eight-year old boy had all his fingers amputated in a corn grinding machine. There were 27 patients with nail punctures involving the feet. Forty-three children were treated for abrasions and bruises sustained during fights. Nine children received serious bruises caused by stones thrown at them. Seven patients had their hands crushed in house doors and a three-year old child received a gun shot wound, the circumstances of which were not known.

Outcome

Of the 1,190 children with accidental trauma seen in the Casualty during the 12-month period, only 101 (8.5%) were admitted into the wards. Burns and RTA had high rates of admission accounting for 33 (31.7%) of 104 and 56 (19.6%) of 286 children seen respectively, while falls and foreign bodies were responsible for 2 admissions each.

Eleven of the admitted patients were discharged from the ward against medical advice. Two children with severe cerebral contusion from road traffic accidents died in the Casualty. Three other deaths occurred in the wards, two from RTA and one from burns. All these five patients died within the first 24 hours of presentation in hospital.

Discussion

In this hospital-based series, accidents accounted for 18% of all childhood emergencies. This may however, represent only a small

proportion of the true picture in the general population as it is well known that the number of accidents for which treatment is sought is usually only a minor fraction of the number of accidents which occur. The miscellaneous group consisting of cuts, lacerations, abrasions, puncture wounds and bruises sustained from a variety of objects constituted the commonest type of accidents that were encountered, but it accounted for only 7.9% of admitted accident cases.

Road traffic accident was a leading type of accident in the present series and accounted for 80% of the mortality. Accidental falls which constituted the second major accident was responsible for only 2% of admitted cases. Conversely, burns which was the fourth major cause of accidents, accounted for 32.6% of admitted cases and for 20% of deaths. Thus, RTA followed by burns, were the two leading causes of severe morbidity and mortality in this series.

The male preponderance in our study is similar to findings in other series involving Nigerians^{5 6} and those reported from the United Kingdom.⁹ This male preponderance is probably due to the fact that boys are usually more daring than girls. The peak age groups when accidents occurred in Calabar were 5-9 and 10-14 years. Between 5 and 9 years, children are usually very active in exploring their local and external environments and they are less well supervised than the pre-school children. Between the ages of 10 and 14 years, most children in Calabar already attend schools which are all non-boarding and are without school buses; thus, the children have to walk to and from school, largely on their own. Other children not in school at this age are usually involved in street trading along major streets where they are easily exposed to accidents. In this regard, it has previously been observed that Nigerian children form a significantly higher proportion of road traffic accident victims^{7 8} compared with what obtains in some technologically developed countries.^{10 11}

Environmental factors such as indiscriminate disposal of broken bottles and cans, open drainage systems, uncovered balconies and unprotected stairways, all provide opportunities for children to be easily hurt. Furthermore, many children in Calabar still go about bare-foot and this increases the danger of trauma to the exposed feet. Lack of control of domestic pets increases the danger of bites particularly from dogs. Although the 8.7% incidence of burns in the present series was much lower than the 24% reported from India¹² and Tanzania,¹³ the likelihood of children getting burnt in Calabar would appear to be enhanced by the habit of cooking in open places at the ground level with firewood or kerosene stoves.

The nostrils followed by the ears and the gastrointestinal tract were the commonest sites of foreign body insertion. In Western Nigeria,^{5,6} the ears followed by the nostrils were the commonest sites reported whereas in Norwich,⁹ United Kingdom, swallowing of objects was more common.

This retrospective analysis has again, exposed many lapses in our preparedness to handle childhood emergencies. In the case records, the circumstances of the accident or types of injuries sustained were in many cases, not recorded. Adeloye and Odeku¹⁴ in 1970 and Oyemade⁸ in 1973 have made similar observations at Ibadan. We also found that whereas dogs most frequently caused bites, anti-rabies vaccine was generally not available in our hospital during the period under review. Fortunately, none of the cases proved to have been bitten by a rabid dog.

Although childhood accidents generally do not appear to constitute a major medical problem in Nigeria at present, our hospitals seem to be inadequately equipped to handle those severe cases such as RTA which with burns, was responsible for most of the admissions and fatalities in the present series. The prevention of our type of childhood accidental trauma demands improvement in the physical and material structure of our homes and surroundings to

protect against cuts and lacerations from sharp objects, fire disasters and falls. There is also a need for provision of school buses and education of vehicle drivers and pedestrians on road usage.

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