A REPORT OF CHILDHOOD POISONING IN BABOL


Poisoning is a well-known cause of morbidity and mortality in children. This study was done to evaluate the pattern of acute poisoning in children in relation to different age groupings. Pediatric patients hospitalized for acute poisoning at the Amirkola Children's Hospital, Babol, Iran, over a 6-year period (1995 – 2001) were evaluated prospectively. A special attention was given to poisoning in relation to different age groupings. During the 6-year period, the poisoning cases increased from 18 to 98 (7% vs. 37.5%). Eighty-one percent of children were younger than 6 years of age and had a benign course. The majority of cases occurred in children aged 2 to 6 years. Males under the age of 13 years had a higher frequency of poisoning. Drugs were the most common agents of poisoning in children (31.6%), followed by hydrocarbon chemicals such as kerosene (31.2%). The most frequently implicated drugs were benzodiazepines (17.1%). Poisoning in children less than 2 years old was 37%. They were mostly accidental (82.3%) and the majority of them occurred in summer (34.6%). The highest rate of occurrence of poisoning was recorded between 4 and 8 PM (62%). Acute poisoning in children remains a frequent problem, highlighting the need to develop an education program on primary prevention in our region. Parental education and intensified child supervision are the indicated measures of prevention for unintentional poisoning.

Keywords: Accidental poisoning • childhood poisoning • children

Introduction

Childhood poisoning continues to challenge the diagnostic and treatment skills of the pediatrician. It is a universal problem which is usually accidental and is associated with low morbidity and mortality.1 – 3 Children under five account for most unintentional childhood poisonings. Most of the childhood poisonings occur in the child’s own home, commonly in the living and sleeping areas. Accidental ingestion by children is an important public health issue.4 Although there have been studies on changes in incidence of childhood poisoning with the introduction of child-resistant containers and changes in prescribing habits,5 there have been no studies on the effect of availability of a particular medication on accidental poisoning in children.4

Patients and Methods

This study was undertaken to determine the extent of poison-related emergencies in children of Babol (the 2nd biggest city of Mazandaran Province), and to assess the effects of variables such as age, sex, and agent on frequency of poisoning. This prospective study (1995 – 2001) was conducted on children less than 13 years old who were admitted to the Emergency Unit (EU) of Amirkola Children’s Hospital, Babol, Iran. Data were recorded regarding to the age and sex of the children, route of exposure, cause, type of poisoning, and other circumstances. Also, the complications and outcome were documented.

Results

This study indicated that the majority of poisonings (44.1%) occurred in the age range of 2
to 6 years. The frequency of poisoning was more in boys (58.3%) than girls (41.7%). The highest frequency of poisoning was resulted from a single agent (91%). Most of the poisoning cases occurred accidentally (82.3%) followed by stings (5.9%), food poisoning (4.3%), and suicide (0.4%). Only one case who was 13 years old had attempted to suicide. The proportion of accidental poisoning in children under 2, 2 to 6, and greater than 6 years old were 36.4, 48.3, and 15.3, respectively. Data showed that the majority of poisonings occurred in summer (34.6%) followed by winter (23.7%), fall (21.8%), and spring (19.9%). The most important route of poisoning was oral ingestion (91%) followed by injection (7.7%) and inhalation (1.3%).

The frequency of poisoning by drugs (31.6%) was greater than that of nondrug chemicals (mainly hydrocarbon products [31.2%] and opium [21.4%]). As shown in Figure 1, among drugs, benzodiazepines were the most common cause (17.1%) followed by NSAIDs and OCP (15.7%). Among nondrug compounds, hydrocarbons such as kerosene (31.2%) were the most common cause of poisoning followed by opium (21.4%), bleach (4.2%), organophosphate pesticides (3.7%), and stings (4.7%). Unfortunately three children died (1.2% all of cases), among them one child was floated in the petroleum tank, one teenager (13-year-old) attempted suicide, and the third one was intoxicated with carbon monoxide (CO). The frequency of therapeutic intervention performed for management of poisoning included lavage (25.7%), use of ipecac (31%), use of activated charcoal (29.8%), and use of cathartics (4.1%).

In total, 11% of the cases were treated as out-patients and 89% of them were hospitalized. Of these cases, 96.2% were recovered without any sequelae and 1.2% of them died; 2% of the patients were transferred to other centers.

**Discussion**

Accidental poisoning accounted for 83% of the poisoning cases in this study. This result is consistent with a previous study by Yang et al. The total number of accidental ingestions is related to the access that children have to medications.

The incidence of accidental childhood poisoning is quite high compared with similar studies conducted in Saudi Arabia and some Persian Gulf countries such as Qatar. The highest incidence of accidental poisoning in this study was observed in children less than 6 years old (81%), with a male to female ratio of 1.4:1. This pattern appears consistent with previous reports on accidental poisoning.

The common route of poisoning was oral, which is in agreement with other reports. Drug ingestion was the most common finding followed by hydrocarbon products (e.g., kerosene), household chemicals, and opiates. This is in agreement with our previous study in the same zone of the province. The most commonly used agent responsible for unintentional poisoning in children in Iran was kerosene. It is significant that none of the drugs, accidentally ingested, was dispensed in childproof containers. The prevention of accidental poisoning by prescribed medication has been successfully addressed by the use of child-resistant containers.

The most frequently ingested substances were...
drugs such as benzodiazepines (mainly diazepam), opium, and household products (bleaches). This was shown in a previous study in Iran. Our data showed that the most common drug for poisoning was diazepam. Fortunately, diazepam has a high therapeutic index and is considered as the safest of all sedative-hypnotic drugs. Among other drugs, analgesics such as acetaminophen, aspirin, and other NSAIDs accounted for 15.7% of total drug-related poisoning cases. Fortunately, there is a low mortality rate for these classes of drug in Iran. It is interesting that general public in Iran are more familiar with analgesic drugs than others.

In this study, 21.4% of the cases were poisoned with opium. General practitioners, pediatrics, and emergency department physicians should recognize and suspect this rare cause of opiate toxicity in a child. While these findings are consistent with other studies from the USA, Qatar, and UK, they are in contrast with data from Saudi Arabia and South Africa. Ninety-seven percent of the cases were treated and discharged either immediately or within 24 hours of admission. The data revealed a mortality rate of 1.2%.

With regard to the severity, most of the poisonings in children in this study required mainly observation and noninvasive treatment. Prompt and effective routes of encountering poisoning, e.g., gastric lavage, induction of emesis, activated charcoal for in situ adsorption of the toxic substances, antidotes, and cathartic agents can prevent mortality and morbidity. These point to the need for having a well-informed population on the availability of poison control centers. Further education of parents and caretakers, and use of child-resistant containers are needed to prevent these cases of pediatric poisoning.

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References