

Drug poisoning in childhood

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ABSTRACT

Objectives: To determine and present the pattern of poisoning with drugs in Princess Rahmat Hospital, Irbid, Jordan, and to assess the effects of variables such as age, season, gender and agent on poisoning frequency.

Methods: We performed this retrospective cross-sectional study on 126 cases of poisoning with drugs hospitalized in Princess Rahmat Teaching Hospital, Northern Jordan, during a 6-year period from 1996 to 2001. The data collected included: age, gender, seasonal variation, material ingested, symptomatic or not on admission, time and place of ingestion, history of similar problem among the patient or his siblings, whether the parent induced vomiting before seeking medical help or not and the outcome regarding mortality and morbidity. We considered chi-square and values for the statistical analysis.

Results: There were 126 children (<12 years of age) admitted during the study period. Among the children, 54 (42.9%) were girls and 72 (57.1%) were boys. The

majority (89.7%) was <6 years. There were seasonal variations of poisoning events with a higher frequency in the Spring (39%) and in Summer (35%). We considered severity mild in 60%, moderate in 27% and severe in 13% of cases. The large majority of drugs were psychotropic agents (56%) and principally diazepam's (39%). Self-poisonings were the most frequent cause of poisonings among children <12 years of age (mostly accidental poisonings such as drug poisonings). None of the children died or had a permanent sequel.

Conclusion: Although we recorded no deaths in this study, drug 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.

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Acute drug poisonings of children are a major problem for health authorities throughout the world, and are responsible for serious morbidity with mortality risks.¹⁻⁴ Poison is a substance capable of producing damage or dysfunction in the body by its chemical activity. It can enter the body in various ways to produce general or local effects (limited to the eyes, skin, lungs, and so for). All cases of poisoning that result from accidental use of drugs by children due to curiosity, are accidental or non-intentional poisoning. Poisoning is a qualitative term used to define the potential of a chemical substance in acting adversely or deleteriously on the body.⁵ Advances in technology and social development

now result in the availability of most drugs in the community. These chemical substances pose a significant threat due to the extensive use in medicine, agriculture, industry and residential environments.⁶ In 1995, the USA found drugs to be the third most common cause of poisoning that lead to death. Poisoning from drugs was the main cause of death in the 35-44 years age group. During 1990-1995 mortality rate due to poisoning showed a 25% rise.⁷ Fifty-nine percent of the poisoning occurred in the under 14 years age group.⁸ The prevalence of hospitalization and death was highest among the elderly.⁹ On the whole, the most common drugs that cause poisoning was tranquilizers and anti-

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psychotics, especially benzodiazepines, phenothiazines and tricycles antidepressant.^{3,4,8} Drugs are among the major causes of acute poisoning in both cities and villages. Studies conducted in different parts of Iran including Mashhad⁴ and Babol,⁸ all point to the high prevalence of poisoning due to drugs and chemicals. The main causes of this type of poisoning differ in various areas of Iran. In Mashhad,⁶ and Babol,¹⁰ for example, they found tranquilizers (diazepam) to be the most common causes of drug-related poisoning. They widely use fertilizers and pesticides in Gilan, northern Iran, and that explains why most poisoning cases are due to these substances in this region.¹⁰ Socioeconomic and cultural factors influence the pattern and cause of poisoning, as well as the religious beliefs prevalent in the community. We have observed a considerable number of suicidal cases in the last few years in Irbid (which is also a Northern city of Jordan). The aim of this study is to investigate the pattern of drug poisoning in children hospitalized in Princess Rahmat Hospital, Northern Jordan.

Methods. A 6-year prospective study of drug poisoning in children admitted to the Princess Rahmat Teaching Hospital, Northern Jordan, between January 1996 and December 2001. The medical records of these children were reviewed retrospectively. One researcher recorded the data from the medical files extracted from the database for each child using a standard form, which included an evaluation of clinical symptoms, a report of a complete blood cell count, and a blood chemical analysis and included age, gender, seasonal variation, place of ingestion, the type and place in which the drug was kept, whether vomiting was induced or not by the parents before seeking medical help, and history of ingestion by the patient or the siblings, symptomatic or not on admission. Chi-square and values were considered for the statistical analysis.

Results. A total of 126 children (≤ 12 years of age) were included in the study, 54 (42.9%) were girls and 72 (57.1%) were boys. The majority (89.7%) were < 6 years. (Table 1). A significant relationship ($p < 0.05$) exists between the poisonous substance and the season in which poisoning occurred. It was observed that poisoning in children occurred mostly during spring (39%), and in summer (35%), while in adults was more frequent during spring as well as summer seasons. Poisoning due to organophosphorus compounds, detergents and kerosene oil derivatives were also more frequent in the spring and summer seasons. The majority of drugs were psychotropic agents (56%), and principally diazepam's (39%). Followed by oral contraceptive (8%), antihistamines (8%), analgesics

Table 1 - Age and gender variables.

Age (year)	Number of patients		Total
	Male	Female	
1	8	7	15
2	18	17	35
3	19	14	33
4	10	7	17
5	8	5	13
6-12	9	4	13
Total	72	54	126

(7%), antibiotics (4%) and others (11%). Severity was considered mild in 60%, moderate in 27% and severe in 13% of cases.

Discussion. The total number of admitted children with drug poisoning in this study constitutes 1.5% of the total annual admissions to the pediatric hospital, which is a low figure when compared to other studies from developed countries. In this study, most of poisoning occurred in the 1-6 years age group. We observed similar findings in a study conducted in Loghman Hospital (Tehran).¹¹ In another study, carried out in the USA the 1.5-3 years age group was more at risk of childhood poisoning.¹² Approximately 24.5% of the poisoning cases were in children < 12 years of age and 75.5% occurred in adults. Studies conducted in Babol, showed that 22% of acute drug poisoning occurred in < 15 years of age group and the remaining occurred in the older ages.⁸ In a report on a study conducted in the USA, we observed that 72.4% of the total cases of poisoning occurred in < 5 years of age and 12.6% in the 5-12 years age group (a total of 85%) and the remaining 15% occurred in adults.¹² The similarity of our results with those conducted in Babol, most probably relate to the geographical, agricultural and cultural similarities of these regions as opposed to those prevalent in the USA. These results are in sharp contrast to those reported from the USA where almost 90% of cases of poisoning were accidental. The high rates of intentional poisoning in the Iranian studies may reflect increasing social, economical and psychological pressures in the past few years. Whereas it seems that in the USA, the most common cause of accidental poisoning in children is aspirin and other analgesic medications.¹³ In contrast, American studies showed a 1% mortality rate with antidepressants and analgesics as the main causative agents. Drug overdoses cause a range of symptoms, including excitability, sleepiness, confusion, unconsciousness, rapid heartbeat, convulsions,

nausea, and changes in blood pressure. The best initial evidence of a drug overdose is the presence of an empty container near the victim. Symptoms differ depending on the drug taken.

In conclusion, the establishment of Poison Control Centers, early cooperation between families and physicians, the higher intelligence of parents administering prescriptions, and increased awareness of poisoning are the promising advances in the scope of our center. However, the increased incidence of the cases of self-intoxication as observed throughout the world highlights the need for some additional measures to be taken from the pharmaceutical, individual and sociological points of view. Child-resistant containers for drugs and other household products are one of the most important interventions in the reduction of childhood poisoning incidence. On the other hand, we should also provide public education about poisoning, which is of major importance. Also, especially for the sake of the infant age group, the drug industry should carefully design the dosage of each drug preparation, and prescribed and defined by the physicians. We need prospectively designed multi centered studies to reflect the epidemiological properties of childhood poisonings throughout our country, and these would be very valuable for the determination of preventive measures. To prevent such accidents, we recommend implementation of that widespread community education to increase popular awareness of the danger of these compounds and to stress to parents to keep chemicals and medications out of reach of young children.

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