



Original article

The patterns of children poisoning cases in community teaching hospital in Riyadh, Saudi Arabia

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ABSTRACT

Introduction: Although the majority of poisoning-related cases can be managed in home settings, reduction of hospital visits and admissions are still important challenge. Thousands of interventions are involved and the appropriate management of poisoning is therefore a major task and burden to any institution. Therefore, the present study was aimed to identify the most common classes of toxic substances and route of poisoning in children and to investigate the pattern of drug and chemical poisoning in suspected case fatalities, the subsequent need for hospital admission and arrival time to hospital.

Methods: A retrospective cross-sectional descriptive study of all registered poisoning cases of children reported to drug and poison information center at King Khaled University Hospital Riyadh, Saudi Arabia during the period of January 2010–December 2016.

Results: A total of 735 children presented to Pediatric Emergency Medicine with poisoning. Most of the cases were asymptomatic, and majority of children were arrived to the hospital in less than 3 h. The drugs were the most common cause of poisoning (70%) followed by chemical materials (29%), which is more common in children under 2 years comparing to other groups ($p < 0.001$). The route of poisoning was oral in the majority of cases (98.8%). The drugs most frequently ingested were analgesic (18.8%). Among the chemicals, pesticide products involved in (39.6%) of the cases, followed by cleaning products (25.9%) and cosmetic (22.8%).

Conclusion: The results found that the majority of poisoning cases occurred in children under the age of six and required only observation without treatment. These results necessitate the need for close cooperation between different governmental health-sectors to establish national epidemiological surveillance of poisoning events in Saudi Arabia to help to develop national plans to decrease the financial burden of emergency department congestion and hospital crowding.

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1. Introduction

Poisons, also known as toxins, are potentially harmful substances that can damage and injure the human body (Thomas

et al., 2007). Poisoning occurs when these toxins are either ingested, inhaled, or introduced through the skin, with exposure often occurring intentionally or accidentally in homes (Mowry et al., 2014). This significant global public health problem is one of the most important causes of morbidity and mortality worldwide. (Eddleston and Phillips, 2004) A World Health Organization report in 2012 revealed that an estimated 193,460 deaths were caused annually because of unintentional poisoning worldwide, of which 84% occurred in low- and middle-income countries (Global Health Estimates, 2014; Organization, 2016). Moreover, the highest mortality rates from unintentional poisonings were reported in children younger than 5 years and adults older than 55 years. In Saudi Arabia, there have been multiple reports of poisoning in children and adolescents (Ragab et al., 2015; Naguib and

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Al-Saigul, 2009), with the peak incidence occurring in toddlers aged 1–7 years.

Among all reported cases of poisoning, acetaminophen is the most common cause (Alanazi et al., 2015). There are some reports of direct interventions and home management recommendations from poison control centers (Ragab and Al-Mazroua, 2015). Indeed, most poisonings can be managed at home, and reducing hospital visits and admissions remains an important challenge. Appropriate patient triage and management are key to any approach designed to reduce morbidity and mortality, especially among children. Given that thousands of cases are involved annually, appropriate poisoning management is a major burden for any institution.

In the present study, we aimed to identify the most common poisons in children by class and route. We also aimed to investigate the pattern of drug and chemical poisoning in case fatalities, the need for hospital admission, and the arrival time at hospital.

2. Methodology and materials

2.1. Study design

We conducted a retrospective cross-sectional descriptive study at King Khalid University Hospital (KKUH), Riyadh, Saudi Arabia. The study was approved by the institutional review board at KKUH.

2.2. Data collection

Data were collected from all registered cases of poisoning in children reported to our Drug and Poison Information Center (DPIC) between January 2010 and December 2016. The DPIC at KKUH frequently receives queries from the emergency medicine department regarding the management of poisoning in children. The emergency medicine department has 19 dedicated beds for pediatric cases younger than 12 years. Case data reported from January 2010 to June 2015 were retrieved manually, but data reported from July 2015 to December 2016 were retrieved electronically. All reported clinical and laboratory data were collected, including the

patient's medical electronic number, demographic data (age, gender, and weight), poison characteristics (suspected poison, route, quantity, time of poisoning, and arrival time at hospital), patient medical history (signs and symptoms), management details, and poisoning parameters. During data collection, patient identifiers were replaced with random identifiers for data protection and security. Patient information was only utilized for research purposes, and investigators ensured that confidentiality was maintained throughout the study period.

2.3. Statistical analysis

All data were analyzed using IBM SPSS, Version 20 (IBM Corp., Armonk, NY, USA), with P-values of <.05 considered statistically significant. Descriptive statistics are reported as means and medians (with standard deviations) or as frequencies and percentages, as appropriate. Chi-squared tests were used to determine associations between qualitative variables.

3. Results

During the study period, the pediatric emergency department saw an average of 43,342 patients each year (range 32,286–50,546 per year), among which 735 presented with poisoning (mean age 2.7 ± 2.1 years, range 5 months to 13 years). Overall, there was an increasing trend in cases of reported poisoning, but the highest frequency was reported in 2014 (Fig. 1). To aid analysis, we divided patients into 0–2, 2–6, and >6 years age groups. Most children were younger than 6 years (94.3%) and almost half (49.7%) were female (Table 1).

3.1. Poisoning type

Drugs were the most common cause of poisoning (70%), followed by chemicals (29%). The reported cases were more common in the 0–2 years age group than in the older age groups ($p < .001$). No significant differences were found between poisoning type and

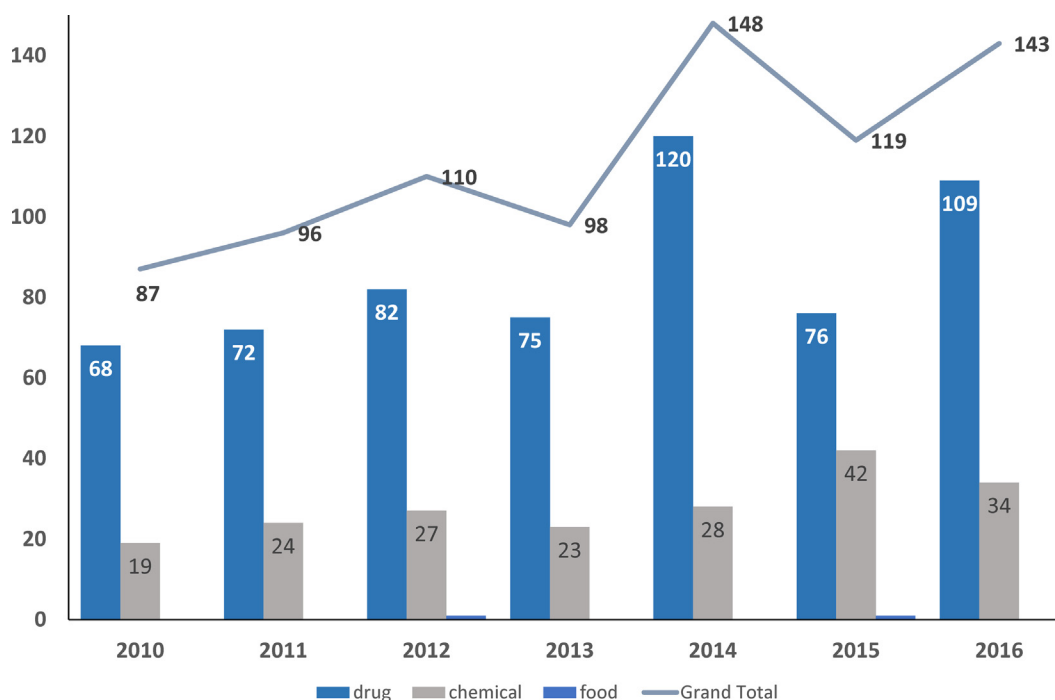


Fig. 1. Pattern of poisoning 2010–2016.

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