

H105 Pediatric Poisonings: An Epidemiological Study

Mete K. Gulmen, PhD, MD*, Çukurova University, Adana 01330, TURKEY; Kenan Kaya, Çukurova University, Adana, Saricam 01330, TURKEY; Ozgenur K. Tok, MD, Çukurova University School of Medicine, Balcali 01330, TURKEY

Learning Overview: After attending this presentation, attendees will have a better understanding of the importance of childhood poisonings and of designing a detailed report to alert and inform the authorities.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by informing attendees about the clinical forensic medicine applications, examinations, and reporting of poisonings in a standard base so all medical doctors may improve their services with better understanding.

Poisoning is one of the most common medical emergencies in childhood. Poisoning is defined as cells being injured or destroyed by inhalation, ingestion, injection, or absorption of a toxic substance.¹ The prevalence and type of poisoning varies worldwide depending on the particular topography/environment, type of agricultural activities, amount of industrial development, cultural practices, and local beliefs/customs. The case fatality rate is largely determined by the degree of access to quality health care treatment.² Although pediatric poisonings are considered emergencies, more than 85% of cases need no medical intervention because the ingested material is typically not toxic or the amount swallowed is not clinically significant¹.

Each year in the United States, more than one million poison exposures among children younger than six years of age are reported to the American Association of Poison Control Centers (AAPCC).^{1,3} According to the World Health Organization (WHO), in 2004, acute poisoning caused more than 45,000 deaths in children and teenagers.³ The most common agents implicated in childhood poisonings in developed nations were over-the-counter preparations (e.g., paracetamol, cough/cold remedies, vitamins and iron tablets, antihistamines, and anti-inflammatory drugs); prescription medications (e.g., antidepressants, narcotics, analgesics); recreational drugs; household products (e.g., bleach, disinfectants, detergents); pesticides (e.g., insecticides, rodenticides, herbicides); poisonous plants, and animal or insect bites.¹

This is a retrospective study. Included in this study are all poisoned children admitted to the Forensic Medicine Council of Adana/Turkey in 2018. Data were collected from the medical records of children ≤ 18 years of age. In sum, acute poisoning was reported in 108 children. Of the total acute poisoning cases, 46.2% were males and 53.7% were females. Of the 108 cases, the youngest age was eight months and the average age was 78.4 months. Pharmaceutical agents were identified in 57.4% of cases. Analgesics were the most frequently ingested drugs (23.1%). Therapeutic drugs were most common cause at all ages. The manner of death in most of the drug intoxication cases in Turkey is suicide in adults; however, it is mostly accidental in childhood cases.⁴ In the current study, accidental drug poisonings comprised 64.8% of total poisoning cases, while suicides accounted for 35.1%. Non-pharmaceutical agents were identified in 46 patients (42.5%), 20.3% of which were food poisoning. Other intoxications (24 cases; 22.2%) ordered by frequency were with mushrooms (9.2%), organophosphates (5.5%), carbon monoxide (4.6%), and others (2.7%).

Acute poisoning is considered as one of the most common medical emergencies in children.^{1,3} Accidental poisonings are still highly common in most countries, despite the improvement of preventive measures, which consist of proper packaging of medicines and household products, doubled by raising awareness of the toxic items that should be kept out of children's reach.⁵ Parental education about the prevention of childhood poisoning at home remains a major issue, especially with regard to keeping everyday medications and household products out of the children's reach. The use of child-resistant containers for medications or household products and the use of locked cabinets would help in prevention efforts.⁶

This study provides significant demographic data that can assist in alerting clinical colleagues to take further precautions. Therapeutic drug intoxications are one of the major serious childhood causes of admission to emergency services; patients typically recover much better with an appropriate treatment and follow-up. Forensic clinical examinations are important in daily practice as they can provide detailed reports informing clinicians—as well as emergency service personnel and Intensive Care Unit (ICU) caretakers—about childhood poisoning epidemiologic factors and risks.

Reference(s):

1. *Children and Poisoning*. Available: HYPERLINK https://www.who.int/violence_injury_prevention/child/injury/world_report/, https://www.who.int/violence_injury_prevention/child/injury/world_report/.
2. Parekh, Utsav ve Gupta, Sanjay. Epidemio-toxicological profile of poisoning cases—A five years retrospective study. *Journal of Forensic and Legal Medicine*, 2019, 65: 124-132.
3. Ilirjana Bakalli, Ermira Kola, Ermela Celaj, Edrina Kola. Has the pattern of acute poisoning among children in Albania changed? *Journal of Environmental Toxicology and Public Health*, April 2017, Cilt Volume 2. Pages 7-13.
4. Ozkose Z, Ayoglu F. Etiological and demographical characteristics of acute adult poisoning in Ankara, Turkey. *Hum Exp.Toxicol.* 1999 ve 18(10):614-8.
5. Nistor, Nicolai et al. Epidemiological study on accidental poisonings in children from northeast romania. *Medicine*, 2018, 97.29.
6. Yasemin Akın, Turgut Ağzıkuru, Serdar Cömert, Pınar Atılkan, Gülay Çiler Erdağ, Berrin Telatar. Hospitalizations for pediatric intoxication: A study from İstanbul. 2011, *The Turkish Journal of Pediatrics*, s. 369-374.

Pediatric Poisonings, Accidental, Clinical Forensic Medicine