

Evaluating the Characteristics of Paediatric Accidental Poisonings

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Abstract : Background: While accidental poisonings in children may seem unavoidable, knowledge of circumstances surrounding such incidents and identification of risk factors is important in the development of secondary prevention strategies. Some risk factors include age of the child, lack of adequate supervision and improper storage of substances. The aim of this study is to assess risk factors and circumstances influencing outcomes in these children. Methodology: A retrospective medical record review of all accidental poisoning cases presenting to the Children's Emergency at National University Hospital (NUH), Singapore between January 2014 and December 2015 was conducted. Information on demographics, poisoning circumstances and clinical outcomes were collected. Results: Ninety-nine of a total of 186 poisoning cases were accidental ingestions, with a mean age of 4.7 (range 0.4 to 18.3 years). The gender distribution is rather equal with 52(52.5%) females and 47(47.5%) males. Seventy-nine (79.8%) were self-administered by the child and in 20 cases (20.2%), the substance was administered erroneously by caregivers 12/20 (60.0%) of whom were given the wrong drug dose while 8/20 (40.0%) were given the wrong substance. Self-administration was associated with presentation to the ED within 12 hours ($p=0.027$, OR 6.65, 95% CI 1.24-35.72). Notably, 94.9% of the cases involved substances kept within reach of the child. Sixty-nine (82.1%) had the substance kept in the original container, 3(3.6%) in food containers, 8(9.5%) in other containers and 4(4.8%) without a container. Of the 50 cases with information on labelling, 40/50(80.0%) were accurately labelled, 2/50 (4.0%) wrongly labelled, and 8/50 (16.0%) were unlabelled. Implicated substances included personal care products (11.1%), household cleaning products (3.0%), and different classes of drugs such as paracetamol (22.2%), antihistamines (17.2%) and sympathomimetics (8.1%). Children < 3 years of age were 4.8 times more likely to be poisoned by household substances than children >3 years of age ($p=0.009$, 95% CI 1.48-15.77). Prehospital interventions were more likely to have been done in poisoning with household substances ($p=0.005$, OR 6.12 95% CI 1.73-21.68). Fifty-nine (59.6%) were asymptomatic, 34 (34.3%) had a Poisoning Severity Score (PSS) grade of 1 (minor) and 6 (6.1%) grade 2 (moderate). Older children were 9.3 times more likely to be symptomatic ($p<0.001$, 95% CI 3.15-27.25). Thirty (32%) required admission. Conclusion: A significant proportion of accidental poisoning cases were due to medication administration errors by caregivers, which should be preventable. Risk factors for accidental poisoning included lack of adequate caregiver supervision, improper labelling and young age of the child. There is an urgent need to improve caregiver counselling during medication dispensing as well as to educate caregivers on basic child safety measures in the home to prevent future accidental poisonings.

Keywords : accidental, caregiver, paediatrics, poisoning

Conference Title : ICEM 2017 : International Conference on Emergency Medicine

Conference Location : Dubai, United Arab Emirates

Conference Dates : November 24-25, 2017