



## Acute Accidental Poisoning in Children: An Emerging Threat to the Safe Childhood

Alok Kumar<sup>1\*</sup>, Tabassum Khatoon<sup>2</sup>, Archana Verma<sup>3</sup> and Beena Shrivastava<sup>4</sup>

<sup>1</sup>Department of Head, Forensic Medicine & Toxicology, Uttar Pradesh University of Medical Sciences, India

<sup>2</sup>Department of Head, Forensic Medicine & Toxicology, CGHS Lucknow, India

<sup>3</sup>Department of Neurology, Uttar Pradesh University of Medical Sciences, India

<sup>4</sup>College of Education & Technology, India

### Abstract

Throughout the world; Acute Poisoning is an important health issue particularly in the third world countries, including India. The pattern of poisoning changes with time and varies from nation to nation furthermore in distinctive locales of same nation. In India; poisoning overall accounts for approximately 10% of causality admissions and mostly associated with lethal household and agrochemical pesticides. In Indian scenario; it is mostly suicidal and 3rd leading cause of death especially among the young population of 15 - 44 years.

### Short Review

As these highly toxic compounds cannot be banned completely; their substitution by the newer less toxic compounds in highly affected areas may be of great value. Such new chemicals of high potency and low toxicity continue to be developed (e.g. Imidacloprid, Pendimethalin, Pencycuron etc.) and claimed to have a very low human toxicity but at times they too, may be hazardous [1-3].

In case of children; acute intoxication is a frequent occurrence and invariably accidental in nature. Preschool age group (1-3 years) is highly susceptible as they are curious & often explorative in behaviour. Their hand to mouth activities & tendency of playing close to the ground further magnify toxic exposure. Above 3 years of age there are fewer cases as these children can be warned against harmful products by a responsible caretaker. To assess the pattern of acute childhood toxicities; a retrospective, observational study was performed in a tertiary health care centre at Lucknow, India.

This study signifies accidental nature of all cases. Most victims were under three years of age with an obvious male predominance (2.33:1). In maximum cases, Household poisons; especially kerosene oil has been consumed accidentally. Among drugs; Paracetamol was reported in most cases. Maximum (70%) cases required only supportive treatment, while 4% cases could not be saved despite of meticulous efforts.

Several other studies also implicate Kerosene oil to be the commonest toxic agent. Victims might have consumed kerosene in confusion of soft drinks or mineral water rather than kerosene in the container. In Third World countries like Pakistan, India and Sri Lanka, Kerosene oil is the commonest hazardous substance ingested accidentally by children. Surprisingly, it is also reported from industrialized cities [4]. Kerosene poisoning may be associated with several factors; e.g. it is stored in almost every home, usually kept at easily accessible areas, children often mistake kerosene oil for bottled soft drinks.

Drug toxicities (12%) were next to kerosene ingestion, followed by organophosphorus compound in 5% cases. A high incidence of poisoning due to household pesticide is well documented in the literature particularly in rural and slum areas of agrarian countries like India. Children may be inadvertently exposed to them as they are frequently used as agricultural & household insecticides and in the treatment of animal ectoparasites [5]. In western countries, such compounds are available in child resistant packaging which is not practiced in most developing countries including India. Factors like; unawareness, low socioeconomic status, small houses with crowded families etc leads to their fatal poisoning. Further, these compounds are not properly placed and usually not kept away from reach of children, resulting into their severe poisoning. Similar to several other studies<sup>(10, 17, 31)</sup>, the most common route of poisoning was oral ingestion. Inhalational poisoning is rarely seen

### OPEN ACCESS

#### \*Correspondence:

Alok Kumar, Department of Head,  
Forensic Medicine & Toxicology,  
Uttar Pradesh University of Medical  
Sciences, India, Tel: +91-9456995036;  
Fax +91-5688-276580;  
E-mail: drsalok@rediffmail.com

Received Date: 22 Sep 2017

Accepted Date: 20 Oct 2017

Published Date: 13 Nov 2017

#### Citation:

Kumar A, Khatoon T, Verma A,  
Shrivastava B. Acute Accidental  
Poisoning in Children: An Emerging  
Threat to the Safe Childhood. *Ann  
Pharmacol Pharm.* 2017; 2(13): 1129.

Copyright © 2017 Alok Kumar. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

among the children and elderly; but cases may occur [6].

Worldwide, in different studies; household products accounted for maximum cases of AAPs, followed by drugs and food poisoning. Kerosene and other petroleum products again topped the list of household products. Children are curious & often explorative in behaviour. Parental awareness plays a crucial role. In the same state, another incident of mass poisoning has been reported, where some ignorant people (mostly children) under the influence of rumour & plunge of horde picked & consumed fallen *Jatropha* seeds mistaking them for edible sunflower seed. It is interesting as well as shocking to see the height of unawareness, when not only the elders from urban locality consumed toxic seeds, they also let their beloved children eat them, just due to ignorance and lack of understanding [7].

In general, Acute Kerosene poisoning is the commonest accidental intoxication among Indian children. The improper storage and lack of understanding of these dangerous household products is the major cause of poisoning, so increased public awareness of risks and proper storage could significantly reduce the occurrence of accidental paediatric poisoning to a great extent and may play a vital role in saving the precious lives.

### **Socio-Political Aspects and Role of Government Authorities**

Acute paediatric poisoning is a familiar health hazard particularly in families living in overcrowded homes with minimum facilities, where these toxic substances are carelessly stored and very easily accessible to children.

The important issues need to be dealt with, include Government policies and state responsibility for safe childhood, economic status of families and their support by neighborhoods, and the allocation of resources to prevention, intervention, support, and empowerment programs. The lack of adult supervision and time

spent doing constructive, cooperative activities are important toxic aspects of the social environment today, and these forces compound the effects of other negative influences in kids' social environments. Kids "home alone" are more vulnerable than are children backed up by adults. Finally; unintentional childhood toxicities further reflects an interaction between inappropriate storage of toxic consumer products and suboptimal supervision.

Health officials, the media, and community outreach must all help to increase awareness about the dangers of poisoning and of preventive measures.

### **References**

1. Sinha K . 40% of India ' s suicides in four southern states; the Times of India. 2012.
2. Kumar A, Srivastava R, Vishwakarma P, Pant MK, Verma A. Suicidal Human Poisoning with Fungicide Pancycuron; a Rare Case Report from Rural India with Brief Review of Literature. *International Journal of Medical Toxicology and Forensic Medicine*. 2012; 2(4): 148-152.
3. Alok Kumar, Archana verma. Emergence of new poisons: A case of pendimethalin poisoning from rural Indi. *Clinical Toxicology*.2013; 5: 458-459.
4. Df Lawson GR, Craft AW, Jackson RH. Changing pattern of poisoning in children in Newcastle. *Br Med J (Clin Res Ed)*. 2011 2; 287(6384): 15-7.
5. O'connor PJ. Differentials in poisoning rates of young Australian children according to residential location and geographical remoteness. *Inj Prev*. 2005; 11: 204-6.
6. Alok Kumar, A Verma, A Kumar. Accidental human poisoning with a neonicotinoid insecticide, imidacloprid: A rare case report from rural India with brief review of literature. *Egyptian Journal of Forensic Sciences*. 2013; 3: 123-126.
7. Anuj Gupta, Alok Kumar, Ajay Agarwal, Motoki Osawa, Archana Verma. Acute Accidental mass poisoning by *Jatropha Curcas* in a metropolitan city of India. *Egyptian Journal of Forensic Sciences*. 2016; 6: 496-500.