Poisoning Among Children In A Tertiary Care Centre Of Andhra Pradesh

Dr. Sekar M.N *, Dr. Anjan Kumar V S *, Dr. Sivaramudu K*, Dr. Ravi Kumar P, Dr. Kiran Kumar S*****

* Assistant Professor, , ** Professor and Head, *** Resident Specialist, Department of Pediatrics, Sri Venkateswara Medical College, Tirupati, A.P, India

Abstracts: Background & Aim: Accidental Poisoning in children focuses on the effect of substances caused by accidental poisonings from drugs of abuse, household products, or various other chemicals. Aim is to analyze children with accidental poisoning for the epidemiological factors; type of poison, time elapsed to reach the hospital, mode of poisoning, socioeconomic status and outcome. Methodology: This was a hospital based prospective observational study carried out at department of pediatrics, SVRR Government General Hospital during the periods of November 2011 to October 2013 . Total of 127 children admitted in the hospital were studied. Results**:** Most common cause of poisoning in children was kerosene (37.8%) followed by organophosphates(24.4%). 54.3%of the poisoned cases were in the age group1month-5year, compared to 37% and 8.6% of the age groups 6-10 and 11-12 yr respectively. Overall incidence of poisoning in males was much higher than females, but in the age group above 10 years there is increased incidence in females. Conclusion: outcome of poisoning is directly related to the interval between poisoning and presentation to emergency care. Immediate access to the medical management , responsible monitoring of the poisoned patients, rapid treatment and follow-ups are essential to improve the condition of these poisoned children. [Anjan Kumar V S NJIRM 2015; 6(3): 26-30]

Key Words: accidental poisoning, children, poisoning substances.

Author for correspondence: Dr.V.S.Anjan Kumar MD, Assistant Professor, Department of Paediatrics, Sri Venkateswara Medical College, Tirupati, Andra Pradesh. Email: dr.anjankumar@gmail.com

Introduction: Poisoning is to take a substance that is injurious to health or can cause death. An individual's medical or social unacceptable condition as a consequence of being under influence of an exogenous substance in a dose too high for the person concerned.

The most common ingested substances were petroleum products. Alkaline cleaners (12.6%), Opiates (11.9%), Tricyclic Antidepressants (8.4%) and Benzodiazepines (7.7%). About 2.8% of cases were multi-drug poisoning. Opiates were the most common agents which accounted for poisoning in below 6 months old. Decreased level of consciousness (67.6%) and vomiting (50%) were the most common signs and symptoms [1].

Acute poisoning is a common medical emergency in paediatric unit. Poisoning is usually common during the summer season and kerosene was found to be most common ingredient. It was possibly due to easy availability of kerosene and during the summer months thirsty children took this substance which was sometimes kept in the discarded container of soft drinks and mineral water bottles etc. [2]. Acute organophosphorus pesticide poisoning is an increasing worldwide problem, particularlyin rural areas [3].

Children with caustic ingestions in developing countries are often treated at home, or are referred, frequently late, to tertiary hospitals, which only seldom offer adequate endoscopic and dilatation facilities. When dilatations are performed, the stricture is often already well established, making dilatation more difficult.

Accidental poisoning of children leading to death has been reduced because patterns of drug prescriptions have changed, packaging of dangerous drugs has been made safer [4]. Prevention of accidental poisoning is an important phase of major health problems. Poison control centers supply up-to-date information on treatment and toxicity to physicians and are in a position to encourage education and research as part of the program of prevention [5].

The overall aim of this study is to decrease the morbidity and mortality of children who are poisoned. This may be achieved through: Identifying the most common causes of poisoning among children, to study the poisoning cases and concluding the causative agents of poisoning in children and also to establish a relation between socio economic status and childhood poisoning.

Material and Methods: This is a hospital based prospective observational study. Children up to 12 years old presented to the department of pediatrics, SVRR Government General Hospital during the periods of November 2011 to October 2013 were enrolled in the study. A questionnaire was administered which includes age, gender, type of poison, exposure time to poison and time in reaching hospital , place of poisoning, the route of poisoning, mode of poisoning,Urban/Rural,Socio economic class and outcome. Inclusion Criteria includes all cases of poisoned children (≤ 12 years) admitted into the pediatric unit, SVRR Government General Hospital, Tirupati, Exclusion Criteria were children already taking drugs due to certain illnesses, who's over dosage may result in toxicity, Animal poisoning(snake bites, scorpion sting) ,Neonates and Children greater than 12 years. Institutional ethical clearance was obtained before the start of the study. A total of 127 cases of poisoned children admitted to SVRR Government General Hospital were studied Poisoned children attendants were interviewed and data was collected. Data was analyzed through SPSS program.

Results: In A total of 127 cases of poisoned children were admitted to SVRR Government General Hospital during the study period (November 2011 to October 2013). The study showed that , young children were more exposed to poisoning than older ones as 54.3% of the poisoned cases were in the age group 1month-5 years compared to 37%, 8.66% of the age group 6-10 years and 11- 12 yrs respectively. In addition, the incidence of poisoning in males (53.54%) was much higher than in females (46.45%) (Table 1).

Table 1: Poisoning in relation with age and gender

Age Group	Males	Females
< 5 years	37	32
6-10 years	26	21
11 - 12 Years	5	6

The highest percentage of poisoning cases (80.3%) occurred at home (Table 2), where poisoning cases in other places like schools, farm and others represent only 19.7%of the cases. Data also showed that, poison was not in the original container in 73.8% (excluding plant poisons).

Table 2 : Place of Poisoning

Place	Frequency
Home	102
School	6
Farm	14
Others	3

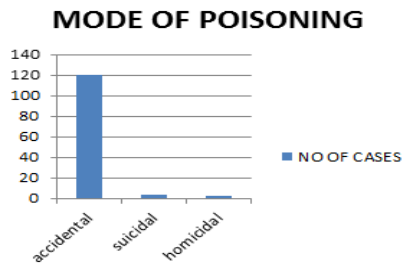
As per Table 3, it was found that kerosene accounted for the highest proportion of poisoning 37.8% as showed in table 4, followed by Organophosphates in 24.4%, Organochlorates 6.3%, Food poisoning 4.7%, Unknown plant seeds 4.7%, Gammaxene 4.7% ,Acid 3.94%, Rodenticide 3.15%, All-out, Oral hypoglycaemics, Datura constitute 2.3% and Diesel 1.5% respectively, Cactus plant and Alcohol constitutes 0.7%, concerning the route of entry, the results showed that ingestion accounted for 97.6%, inhalation 2.4%, of the cases studied.

Table 3 : Type of poison

Type of Poison	Frequency
Kerosene	48
Organophosphates	31
Organochlorates	8
Gammaxene	6
Food poisoning	6
Unknown plant seeds	6
Acid	5
Rodenticide	4
Datura	3
Oral hypoglycaemic agents	3
Allout	3
Diesel	2
Cactus plant	1
Alcohol	1

The present study showed that in majority of cases the mode of poisoning was accidental (94%). In a small number of cases the mode of poisoning was suicidal (3.2%) and homicidal (2.3%) as in Figure 1.

Figure 1 : Mode of Poisoning



Data presented in table 4 showed that 51.9% of cases reached hospital within a period of 5 hours, 29.9%of cases within 6-10 hours, 18.1% of cases presented for a time period greater than 10 hours.

Table 4. Exposure time & time in reaching the hospital

Time Duration in reaching Hospital	Frequency
≤ 5 Hours	66
6 - 10 Hours	38
> 10 Hours	23

This study showed that majority of poisoning cases belongs to lower socio economic strata (upper lower and lower)55.1% ,followed by middle class (upper middle and lower middle) 44.8%. Socio economic classes are divided on basis of Kuppuswamy socio economic scale. Regarding the outcome, the results shows that out of 127 poisoning cases admitted 10 (7%) cases died. 117 cases (92%) got discharged. Most of the death cases were due to poisoning by Organophosphates.

Discussion: Ingestion of poisonous substances is a major challenge in public health and an important health problem throughout the world, particularly among children due to their curiosity and their dependence on the adults in their life. Childhood poisoning is preventable through a good management of toxic substances and their storage, and appropriate education, which can decrease the size of the problem, and minimize the complication.

The present study showed that the highest incidence of accidental poisoning was observed among children less than five years old (54.3%), and among sex, males constitute 53.5%of the poisoned cases . This pattern is consistent with other reports Hyder AA et al[6] , Lamireau et al [7], Rajka et al [8] and R . Khadgawat et al [9].

The occurrence of highest percentage of poisoning in this age group may indicate that the adults (parents mainly) do not provide necessary attention to their children. This age group is highly dependent on adults and appears to be in a high risk, therefore more attention from parents or care givers is needed. The highest rate of poisoning occurred at home (80.3%), this is consistent with the study done by R Khadgawat et al [9].

The present study show that poison was not in its original container in 73.8% of the cases, which complicates the process of poison recognition and treatment. All of the above seems to indicate that there is an insufficiency of educational information on safety and an apparent lack of caution in the handling of poisoning materials. The results show that 54% of poisoned cases are in children less than 5 years age, and reveal the real need for awareness programs that should be directed towards parents about the various aspects of poisoning causes. Therefore, more attention should be directed towards dealing with the poisoning materials at home, these materials should be placed and stored in sites out of reach of children.

The present study showed that kerosene is the most common cause of childhood poisoning which constitute 37.8% followed by organophosphates 24.4% (table 4) The high incidence of kerosene poisoning is obviously due to its easy availability in most households, more so in the poor households .Storage of kerosene in containers meant for drinking water, easy accessibility and carelessness on the part of parents are factors, responsible for staggering incidence of kerosene poisoning. Therefore, petroleum containers should be closed tightly and placed in safe places, and petroleum derivatives should not be stored in drinking bottles. The high incidence of kerosene poisoning is consistent with other reports from Abu-Ekteish F et al [10], Chibwana et al [11], Chitsike I et al [12] and Gupta et al [13].

Ours is an agricultural society and the use of pesticide is very common for plant protection and to protect the stored cereals from insect and rodents. Therefore, more care should be directed towards the type of pesticides, the correct use, storage, and handling of those pesticides.

Oral poisoning accounted for the highest proportion (97.6%) of poisoned cases, this may be due to the curiosity of children in the age of 1-5 years where they will put anything in their mouth to know what it is, and due to carelessness of the parents and lack of education in using and handling the poison that appear in the current study.

In majority of cases the mode of poisoning was accidental (94%), the other modes constitutes only a minority of cases. This is consistent with other reports like Taft C et al[14], Hyder A et al[6] and Burt A et al[15].

The findings of the current study show that 54.3% of cases were brought to the hospital in few minutes to one hour after intoxication . These results indicate that, public has high responsibility towards transporting poisoning cases to medical facilities when intoxication occurs. This rapidness in action resulted in mild side effects of poisoning for the majority of poisoning cases, and decreased mortality rates.

The results clearly indicate that people from lower socioeconomic strata succumb to poisoning easily. The results are consistent with other studies like Turrel G et al[16] and Roberts I et al [17]. Socio economic status is strongly associated with poisoning in children as poverty drives the parents into work, the child left alone unattended which may leads to poisoning easily. The people in lower socio economic strata have limited storage facilities in households, so poisonous chemicals are easily accessible.

The results revealed the 7% of cases died mostly due to poisoning from organophosphates. A few of the cases were suicidal, remaining were accidental. Deaths are probably due to delayed presentation and ingestion of large amounts of poison. Suicidal tendencies are more in female children.

People are unaware about safe handling of pesticides or household chemicals or medications and their safe storage from children. Prevention of accidental poisoning is an important phase to avoid major health problems. Medical professionals could be able to avoid accidental poisoning of children by counseling the parents, by providing knowledge about the poison substances and their safe storage and use. Also by changing the drug prescriptions patterns, by making the packaging of dangerous drugs safer, and substances such as kerosene should be colored. Repeated episodes of poisoning in children should be avoided.

Conclusion: The present study showed that the most common cause of poison was kerosene followed by organophosphate. This study also revealed that, young children were more exposed to poisoning than older ones. Overall incidence of poisoning in males was much higher than females, but in the age group above 10 years there is increased incidence in females probably due to suicidal tendencies and socio economic factors. Outcomes can be improved, by identifying the substance ingested, route of exposure, amount of time poison was since ingested, signs and symptoms and any associated illness or injury, the name of product and strength, immediate access to emergency medical services.

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