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Original Research Article

Study of clinical profile and outcome of poisoning in children admitted to a tertiary care hospital

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ABSTRACT

Background: A poison is any substance that causes harm to a living being. Children are curious and explore their world with all their senses. Every year thousands of children are admitted to emergency department with poisoning. Poisoning pattern changes according to age group, the nature, dose of the poison, type of exposure. This study is aimed at understanding the incidence, aetiology, manner of poisoning and outcome among children less than 18 years of age admitted to Paediatric emergency department.
Methods: This is a Prospective observational study conducted in Paediatrics, MMC and RI, Mysore (Cheluvaba Hospital) between January 2019 to June 2019. After taking ethical committee clearance. 142 children with poisoning admitted to emergency department were included in this study. The age and sex of the patient, poisoning agent, manner of poisoning, duration of hospital stay and outcome of all the patients were recorded and analysed.
Results: Out of 142, 78 (54.9%) cases are males, 64 (45.1%) cases are females. 91 (64.1%) cases are <5 years of age, 17 (12%) cases are between 5-10 year, 34 (23.9%) cases are above 10 years. Among all, 38 (26%) cases of drugs consumption. 65 (45.8%) cases of kerosene consumption. 21 (14.8%) cases of insecticides and pesticides poison. Unknown compound 18 (12.7%) cases. 4 (2.8%) cases died- aluminium phosphide poisoning 3 (75%) and Organophosphorous poison 1 (25%). Duration of hospital stay varied from 1 day to more than 15 days.
Conclusions: Accidental poisoning is common in children below 5 years of age. Suicidal poisoning incidence is increasing among teenagers either due to exam stress or peer pressure. Accidental poisoning can be reduced by simple measures like parental education, replacing the poisoning agent with one of lower toxicity, legislation regarding the child resistant packaging of necessary poisons.

Keywords: Poisoning, Prevention, Kerosene

INTRODUCTION

Poisoning is an emergency as well as major problem in all age groups throughout the world.[1] Poisoning is the fourth leading cause of unintentional injury following road traffic accident, burns and drowning.[2,3] Approximately 2 million people each year under 6 years come to emergency department with history of poisoning. A poison is any substance that causes harm to a living being. Children between 1 and 5 years of age have the highest risk for unintentional poisoning. Pattern of Poisoning varies according to age, the nature and dose of the poison and type of exposure. The cause and type of poisoning varies in different parts of the world and within the country also depending upon factors such as education, demography, socioeconomic factors, customs and local belief.[4-6] Poisonings occur when substances are ingested, injected, inhaled or absorbed through the skin in quantities that are toxic to the body. every 10 poison exposures, approximately nine occur at home in children. Unlike

adults, childhood poisoning is usually accidental thus making it preventable with some simple and intelligent interventions. Poisoning in older children and adolescents is more often intentional, especially due to increasing stress. General epidemiological data should be used to assist emergency department on proper management of poisoning cases especially for effective preventive and therapeutic approaches.[7-9]

Objectives

Objectives of current study were to determine the clinical profile and outcome of acute childhood poisoning in MMC and RI, Mysore and to find out different house hold agents involved in acute poisoning.

METHODS

This is a Prospective observational study conducted in department of Paediatrics, MMC and RI, Mysore (Cheluvaba Hospital) between January 2019 to June 2019. All children and adolescent who were admitted to paediatric emergency ward with history of poisoning were included in this study. Informed consent obtained from parents and care givers of the children before including them in the study. Total 142 cases came to emergency department with history of poisoning during the study period. In each case detailed history was collected like time when poison was ingested or come in contact with it, substance taken, its dose, cause for poisoning, manner of poisoning, any intervention done before reaching our hospital and time when the child was brought to casualty was noted. Data regarding age of the patient, sex, etiological agent, nature of poisoning (accidental or intentional), clinical presentation, duration of hospital stay and outcome were collected and filled in a predesigned proforma. The data collected were then transferred into excel format and analysed as percentage.

RESULTS

Total 4572 cases admitted to emergency department during our study period.

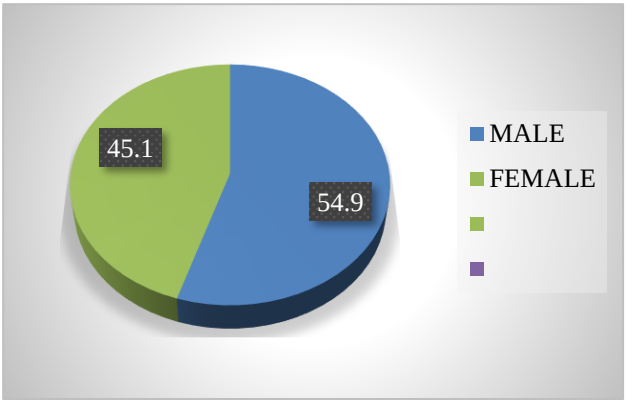

Figure 1: Sex distribution of children with acute poisoning.

Out of these 142 cases came with history of poisoning met our inclusion criteria. The incidence of poisoning in our study is found to be 3.10%. Majority of cases were below 5 years of age, there were 91 cases aged below 5 years accounting for 91%. 10 years and above there were 34 cases accounting for 23.9%.

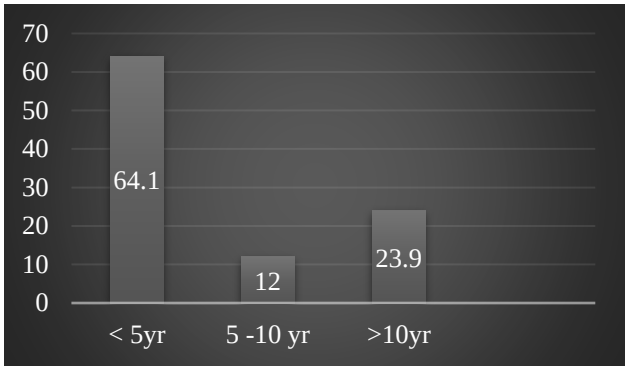

Figure 2: Age distribution of children with acute poisoning.

Between 5-10 year, there were 17 cases of poisoning accounting for 12%. Coming to sex distribution, 64 cases were females accounting for 45.1%. 78 cases were males accounting for 54.9%.

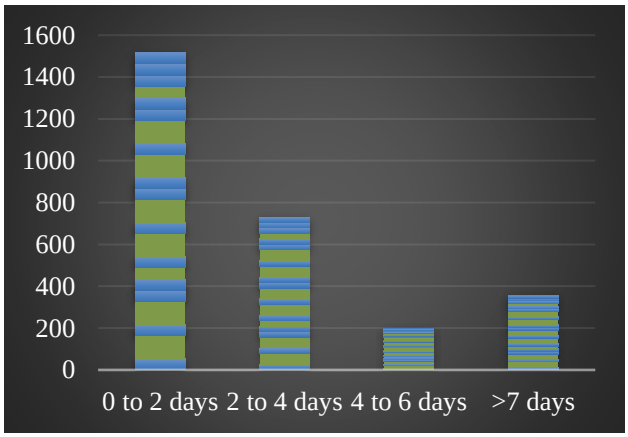

Figure 3: Duration of hospital stay.

There is slight male predominance observed in our study. In this study time taken to reach hospital from the time they exposed to poison was also calculated. Majority of the cases reached within 1-to-4-hour accounting for 72.5%, 10 cases reached within 1 hour of consumption accounting for 07 %.29 cases reached after 4 hours accounting for 20.04%. Duration of hospital stay ranged from on an average 0-7 days.77 cases (54.2%) stayed in hospital ranging between 0-2 days. 37 cases (26.1%) stayed in hospital for 2-4 days. 10 cases (7.0%) stayed between 4-6 days. 18 cases (12.7) stayed beyond 7days. Kerosene consumption accounted for maximum number of cases with 65 cases (45.8%). Next is drug ingestion which accounted for 38 cases (26.8%) most of cases admitted due to ingestion of antiepileptics, antihistamines,

antihypertensives, thyroid drugs, antipsychotics, antidepressants and FeSO4 tablets. 21 cases were due to insecticides and pesticide poisoning (14.8%). 14 cases of organophosphates and 07 cases of aluminium phosphide poisoning.

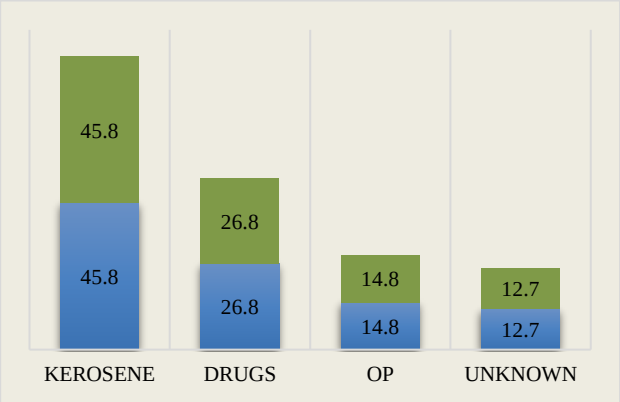

Figure 4: Etiological agents involved.

Most common system involved at the time of admission was GIT 55 (38.7%) (vomiting being the most common symptom) followed by Respiratory system 20 (14.1%) (Respiratory distress). Poison odour was present in 36.6% of cases. CNS symptoms like altered sensorium, restlessness, convulsion and giddiness was present in 11 cases (7.7%). Out of 142 cases of poisoning, 4 (2.8%) cases died 3 deaths were due aluminium phosphide poisoning 3 (75%) and one death was due to organophosphorous poisoning. Remaining cases were treated successfully and discharged.

DISCUSSION

Poisoning in children is important cause of morbidity and mortality in developing countries like India. Our study aimed at describing magnitude of clinical problem and clinical profile of poisoning cases presented. In this study, the incidence of poisoning was found to be 3.12%. Similar incidence has been reported in other studies.[10-12] With respect to sex preponderance, incidence was more common in males, While other studies showed overall incidence to be more common in females.[13-17] Majority of the children were aged below 5 years (64.1%), 17 (12%) cases were between 5-10 years, 34 (23.9%) cases were above 10 years. Other studies reported the most common age group being 1-6 years.[18,19] Study done by Singh et al reported maximum number of cases in children aged above 5 years.[20] Most of the cases (72.5%) arrived to casualty between 1 and 4 hours of poison consumption. A study done from south East Asia also reported most cases presented between 1 and 6 hour of poisoning.[21] The earlier the arrival to emergency department better will be the outcome. This is because we can intervene early. Duration of hospital stay varied from 0 to more than 7 days. Most of the cases stayed in ICU or emergency ward ranging from 1 to 2 days (54.2%). Almost similar results were reported in another study where most cases stayed in the hospital ranging from 1 to 3 days (55.03%).[22,23] Coming to clinical presentation, there was wide variety of clinical presentation according to type of poison and age group. However most common presenting complaint was vomiting involving GIT system (38.7%), CNS manifestations were seen in 7.7% of cases in the form of altered sensorium, restlessness and headache. Odour from the mouth was present in 36.6% of cases. Almost similar presenting complaints observed in study done by Sharma J et al. Other studies also reported the most common presenting complaint being gastrointestinal followed by central nervous system.[24] In our study most common poisoning was kerosene consumption with 65 cases. 38 (26%) cases were of drugs consumption. 21 (14.8%) cases were of insecticides and pesticides poisoning. There were 18 cases of unknown compound poisoning in our study. Total 4 cases died, among them 3 were due to aluminium phosphide consumption and 1 was due to organo phosphorous poisoning. Some other studies done in past showed kerosene is the most common poisoning agent.[25-27] This could be due easy availability of kerosene, inappropriate storage, exploratory behaviour of the child. A study done by Vasanthan et al reported kerosene being the most common etiological agent followed by the other studies reported drugs followed by kerosene are the most common agent in their study.[28-30]

Limitations

Limitation of the study was those cases with history of contact poisons, food poisoning, animal bite, insect bite, chronic poisoning and those having no signs and symptoms of poisoning were excluded from the study.

CONCLUSION

Preventable accidental poisonings are still a significant cause of morbidity among younger children in developing countries. Suicidal poisoning has been shown to be more predominant in adolescents and teenagers especially girls. Negligence and ignorance are the leading causes of paediatric poisonings.

Recommendations

Poisoning can be reduced by keeping toxic agents out of reach of children. Endorsing child proof packaging of potentially toxic agents and parental education regarding poison proofing a child's environment. Counsellor and guidance at every school to help child deal with stressful situations and to guide parents as well. Parental health education will decrease the occurrence of childhood poisoning. Do not store kerosene oil in water bottles/soft drink bottles and publicize the dangers of inducing emesis following kerosene oil ingestion. Educate schoolchildren in all aspects of childhood poisoning. In either case, the most important step is to bring child to the emergency room at the earliest this has been proven to reduce the morbidity and mortality significantly.

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