

Original Research Article

A prospective study of pattern of acute poisoning and treatment outcome in paediatric age group in tertiary care hospital of Konaseema region of Andhra Pradesh, India

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ABSTRACT

Background: Konaseema region of Andhra Pradesh is little different from other area as it is the delta of Godavari river with agriculture and aqua main source of income to the people. This area has mainly rural establishment and no study has been conducted on children to know the pattern of acute poisoning and treatment outcome. Present study has been designed with an aim to study of the pattern of acute poisoning and treatment out come in Konaseema region of Andhra Pradesh.

Methods: In present study all the children from birth to 16 years of age who has been admitted in emergency department were recruited. Patients with snake bite, scorpion bites, unknown bites, idiosyncratic reaction to prescribed drugs, food poisoning were excluded from this study. Information were obtained from mother of the patients in most of the cases but father or other guardian were also interview if mother was not available. A pre-designed questionnaire was used for collection of data. This contains demography data of the patient, profile of poisoning, symptoms of the patient presenting with and the outcome of the treatment.

Results: Insecticide and pesticides poisoning patients were 122 but of that 60 were organophosphorus, 30 were organochlorines, 10 were carbamates, 20 were rat poisoning and two pts were having herbicides and fungicides poisoning. Fourteen patients were having poisoning by house hold things out of then, four having kerosene oil poisoning, 6 patients having turpentine oil poisoning, two patients with phenyl and rest two patients with KMnO₄ poisoning.

Conclusions: In Konaseema region pesticides, insecticides and rodenticides are used commonly in agricultural fields and easily available that is the reason for its poisoning in paediatric age group, so awareness about the proper handling of pesticides container and use is required to reduce the incidence.

Keywords: Acute poisoning, Paediatric age, Treatment outcome

INTRODUCTION

As per the quotation of Paracelsus, “all things are poison, and nothing is without poison only the dose permits something not to be poisonous” so risk of exposure to chemical substances are always there and as children are curious about their surrounding and want to explore then

by all their senses. This nature of child increases the risk of acute poisoning^{1,2} Acute poisoning used to vary in different part of country and even in different region of same state.

As per the study of NPIC AIIMS (National Poisoning Information Centre) New Delhi, the pattern of poisoning

show variable trend and it depends up on geographical and socio-economic conditions.³ Many studies has been conducted in various part of India and having findings as per the local condition, but Konaseema region of Andhra Pradesh is little different from other area as it is the delta of Godavari river with agriculture and aqua main source of income to the people. This area has mainly rural establishment and no study has been conducted on children to know the pattern of acute poisoning and treatment outcome. Present study has been designed with an aim to study of the pattern of acute poisoning and treatment out come in Konaseema region of Andhra Pradesh.

METHODS

This is a prospective study conducted in the Department of Paediatric Konaseema Institute of Medical Science. Amalapuram Andhra Pradesh between January 2012 to September 2017. Ethical clearance for the study was issued by institutional ethics committee and a written informed consent was taken from children's parents or guardians.

In present study all the children from birth to 16 years of age who has been admitted in Emergency Department were recruited. Patients with snake bite, scorpion bites, unknown bites, idiosyncratic reaction to prescribed drugs, food poisoning were excluded from this study.

Information were obtained from mother of the patients in most of the cases but father or other guardian were also interview if mother was not available. A pre-designed questionnaire was used for collection of data. This contains demography data of the patient, profile of poisoning, symptoms of the patient presenting with and the outcome of the treatment.

A total of 260 patients were recruited for this study over a period of 4 years. Data collected were compiled on Microsoft excels and analysis was done by using proportion and chi square test.

RESULTS

Two hundred sixty patients of acute poisoning cases were enrolled in this study over a period of more than four years as per inclusion and exclusion criteria, out of all patient 33 (15.69%) patients were between 1 to 4 years of age, 82 (31.53%) patients were between 4 to 8 years of age, 52 (20.00%) patients were between 8 to 12 years of age and rest were between 12 years to 16 years of age. 148 (59.92%) patients were male and 112 (43.07%) of the patients were female. Accidental poisonings were in 140 patients and suicidal poisoning were in 122 patients. 196 patients were from rural back group and rest were from urban area. Incidence of poisoning were 88 in March to May month, 78 in June to August month, 52 in September to November month and 42 between December to February months.

Table 1: Demographic data of the patient.

		No.	Percentage
Age (years)	1-4	33	12.69
	4-8	82	31.53
	8-12	52	20
	12-16	93	35.76
Sex	Male	148	59.92
	Female	112	43.07
Mode of poisons	Accidental	140	53.84
	Suicidal	122	46.15
Domicile pattern	Rural	196	75.38
	Urban	64	24.62
Seasonal incidence	March to May	88	33.84
	January to August	78	30
	September to November	52	20
	Dec to Feb	42	16.15
Out come	Recovery	238	91.53
	Deaths	22	8.47

Table 2: Profile of poisoning.

Poisons	Types	No.	%
Insecticides and pesticides	Organophosphorus	60	22.9
	Organochlorines	30	11.53
	Carbamates	10	3.8
	Rat poisoning	20	7.6
	Herbicides and fungicides	2	76
	Total	122	
House hold things	Kerosene oil	6	2.3
	Turpentine oil	4	1.5
	Phenyl	2	0.76
	KMnO ₄	2	0.76
	Total	14	
Plants	Oleander yellow	8	3.07
	Nerium seeds	4	1.5
	Datura seeds	3	1.1
	Total	15	
Drugs	Benzodiazepines	26	10
	Analgesics	14	5.3
	Anti convulsants	4	1.5
	Anti-retro viral	1	3
	Thyroid hormones	4	1.5
	Total	49	

As per Table 2 Insecticide and pesticides poisoning patients were 122 but of that 60 were organophosphorus, 30 were organochlorines, 10 were carbamates, 20 were rat poisoning and two pts were having herbicides and fungicides poisoning. Fourteen patients were having poisoning by house hold things out of then, six having kerosene oil poisoning, 4 patients having turpentine oil poisoning, two patients with phenyl and rest two patients with KMnO₄ poisoning.

15 patients were reported to having poisoning with plant sources out of that yellow oleander poisoning were eight

in number, cases with Nerium seed poisoning were four and Datura seeds poisoning were 3. Poisoning by drugs are also common forty-nine patients were having poisoning by drugs, among them Benzodiazepines and analgesic were culprit in 14 and 4 cases, anti-consulant in four cases, thyroid hormone in 4 cases and one case of antiretroviral drug poisoning was there, unknown poisoning has also major contribution.

As per Table 3 gastro intestinal manifestation was common that is 192 (73.86%) which is followed by respiratory distress (98 cases), restless/agitation (79 cases), altered sensorium (66 cases), fever (40 cases), Headache (20 cases), diarrhoea (26 cases), rashes (33 patients) and bleeding manifestations in 2 cases.

Table 3: Common mode of presentation of patients.

Symptoms	Numbers	Percentage
Vomiting	192	73.86
Altered sensorium	66	25.38
Excessive salivation	88	33.84
Respiratory distress	98	37.69
Seizures	4	1.5
Pain abdomen	13	5
Headache	26	10
Fever	40	16.92
Restless/agitation	79	30.38
Diarrhoea	26	10
Rashes	33	8.4
Bleeding manifestations	2	76

Table 4: Relation between age and profile of poisoning.

Type of poison					
Age	Insecticides and pesticides	Household	Plants	Drugs	Unknown
1-4 years	18	6	1	3	5
4-8 years	18	4	8	17	35
8-12 years	24	2	2	10	14
12-16 years	62	2	4	19	6

Now regarding relation between age group and type of poisoning Pesticide poisoning was most common poisoning in all the age group but its incidence was highest between 12-16 years of age. House hold poisoning was common between 1-4 years of age. Plant source poisoning by drugs are common in 4 to 8 years and 12-16 years of age that is 17 and 19. Unknown poisoning was common in 4-8 years of age. All these findings were statistically significant with p value 0.00053.

DISCUSSION

Acute poisoning is one of the common emergencies in childhood and study of pattern of poisoning and treatment outcome used to help in designing preventive measures and treatment plan. We have included patients from birth to 16 yrs of age and divided into four groups and we have found that incidence was high in 4 to 8 years and 12 to 16 years in comparison to 1 to 4 years and 8 to 12 years of age. There is variation in the findings of various authors. As per Gupta SK et al most common age group was between 1-5 years which contradicts the present finding but Bandyopadhyay et al and Randers et al studies support our finding.³⁻⁵

In present study there is male predominance that is 53.8% which is because the male children are more active in nature and this is corroborating with standings of Kohli et al and Dutta AK et al.^{6,7} Accidental poisoning was common then suicidal poisoning which is similar to the study of other authors.^{4,5} Most of the patients were of

rural background, and there was seasonal variation in poisoning incidences, which may be due to local, geographic and occupational factors. Konaseema region is a rural area with agriculture as major occupation, this finding corroborating with Ravindras et al.⁸ Out of 260 patients 238 patients recovered but 22 patients died of acute poisons.

The profile of poisoning shares variable trend, in India different part has different type and frequency which is again influenced by local factors.

In present study insecticides and pesticides poisoning was more common in that organophosphorus compound was most common which is supported by studies of varies authors.⁹⁻¹¹ Poisoning by drugs was second most common poisoning in our study out of those benzodiazepines are most common. In house hold poisoning kerosene oil is most common. In plant poisoning oleander is more common than Datura. As this is rural area with agricultural establishment so pesticide which used frequently in field is easily approachable to children and they used to play with empty box of pesticides and accidentally get exposed to that. Density of Oleander plant is more than Datura in the present area so Oleander poisoning is common we have also recorded poisoning due to Nerium seeds, KMnO₄ and antiretroviral drugs.^{3,4} There is good number of patents with rat poisoning.

There is variation in studies by various author regarding nature and pattern of house hold, plant and drug poisoning, in Kohali et al study kerosene poisoning is

more common, study of Gangal R et al support the present studies.^{6,12} As per the study of Gupta SK et al Datura poisoning was more common than yellow oleander.³ Antiepileptic drugs are common in the study of Bandyopadhyay, but the present study benzodiazepines are more common.

Vomiting was the most common presentation which followed by respiratory distress, excessive salivation, altered sensorium and restlessness, which is similar to the study of Gangal R.¹²

Regarding relation between the type of poisoning and its relation with age, in all the age group organophosphorus was most common but in comparison to all age group it is more frequent in above 12 years of age, because of easy availability of these poison and increasing stress among adolescence age group patient may be the major factor, which corroborating with the study of Gupta SK et al.³ Frequency was more in 1 to 4 years of age and plant poisoning was more in 4 to 8 years of age, this is because of nature and attitude of that age group children. As per the study of Vashishtha et al the common age of plant poison was 4 to 10 years reason behind that is child used to play with plants and some type of specific kitchen games and they eat that.¹⁴

Regarding outcome of the poisoning with relation to its source mortality was high among pesticides poisoning and two cases of death was found in house hold and unknown poisoning patients. Paediatric age group patients are having low body weight and small body surface area so the amount of poison what they got exposed used to be high proportionate to their body weight. This is supported by the work of Gupta SK et al.³

CONCLUSION

In present study we have found that acute poisoning is common emergencies in paediatric age group. In Konaseema region pesticides, insecticides and rodenticides are used commonly in agricultural fields and easily available that is the reason for its poisoning in paediatric age group, so awareness about the proper handling of pesticides container and use is required to reduce the incidence.

Because of dense vegetation in this region the plant poisoning is also frequent identification of plant and removal from the approach of child is important. Easy availability of drug is a contributory factor for drug poisoning so parent education regarding drugs handling is recommended. A poison information centre establishment is essential in tertiary care hospital with toll free number.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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