

Changing Trends (Patterns) of Human Poisoning in Kadapa Region – a Five Years Study

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Abstract

“Caution is advised while decontaminating a victim of poisoning. Over enthusiasm may result in the patient, not the poison” – *John Morrison*

Poisoning has been known to mankind since time immemorial and the study of various poisons and their effects has always fascinated mankind. References to poisons and various instances of poisoning are available in Indian Shastras, Egyptian Papyari and Sumerian writings.¹

Since then many substances considered advantages and disadvantages in the form of food or poisons have been discovered. Those substances which are used unfortunately to take away the man's life or cause ill health have been changing.

Some of the great persons who were poisoned to death are Chatrapati Shivaji Maharaj,²⁻³ whose bed was poisoned, Socrates, who was made to drink Hemlock (*Conium maculatum*) and Rasputin who was poisoned with cyanide and then shot. Aluminum phosphide poisoning, a rodenticide is also posing a formidable challenge and is on the way for taking the number one position. As poisoning trends go on changing, it is necessary to know the poisoning trends from time to time.

Keywords – Incidence, household poisons, agriculture poisons, supervasmol poisons, rodenticide poisons, scorpion sting bites, snake bite cases, kadapa region, five years study.

Introduction

The term “Toxicology” is derived from the Greek word “Toxicos”, the adjective of

‘toxon= bow’. The historian Herodotus used the word toxicon for describing poisoned arrows.⁴

Poison can be defined as a substance which may be solid, liquid or gas, which on gaining entrance into or comes in contact with body parts of a living subject, causes ill health, disease or death. It is difficult to draw a boundary line between medicine and poison because

medicine in large doses acts as poison and a poison in a small dose used as a medicine. The only real difference is the intent with which they are purposely and not accidentally given. Toxicology or study of poisons is considered by many to be a very recently developed scientific discipline. On the contrary, observation of harmful effects of chemical substances on living organisms is rooted in prehistory. Even the ancient people sought antidotes for poisons. Since many chemical compounds, which are used as drugs can act as poisons in their larger doses carry certain degree or risk to human health and to environment. The incidence of poisoning is constantly increasing in all civilized countries. The type of poison used for various modalities may depend upon certain factors. However, there is a progressive shift towards suicidal attempts by consumption of agricultural poisons. Accidental poisoning, which is common among children is ascribe

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increased use of numerous chemical articles in the household. Poisoning in children occurs most frequently in kitchen (34%), bedroom (24%), bathroom and laundry (15%). Industrial poisoning is gradually receding owing to advances in industrial hygiene and medical service and to the increasing automation of industrial processes.

Incidence of accidental poisoning is increasing because of increased use of chemicals both for industrial and domestic purposes. Insecticides and weed killers are also in extensive use in agricultural sector.

Incidence of suicidal poisoning is also increasing because of the easy availability of these agents and also due to non-adjustments to the situations of stress and strain of modern life as they have become highly mechanical and competitive in so many ways.

The incidence of poisoning has increased considerably in the recent past as evidenced by hospital records. This high incidence of poisoning and mortality rates has promoted us to undertake a study of human poisoning.

In Kadapa the age old tradition of suicides by drowning in wells or by hanging have

been replaced by poisoning oneself by the use of 'organosphosphorus' compounds, barbiturates, etc. In Andhra Pradesh state, incidence of death due to endrin (a chlorinated hydrocarbon) and organophosphorus compounds is showing steady increase.. In view of the increase in the number of poisoning cases all over, it is desirable to study the pattern of poisoning cases in each hospital. In the present study, the pattern of poison encountered, incidence of poisoning among different age groups male and female ratios and the manner of poisoning were studied.

Materials & Method

This is a retrospective, simple study conducted from 2015 to 2019 at GOVT General Hospital, Kadapa (AP). 900 poisoning cases was admitted to medical wards in GOVT General Hospital, Kadapa (AP). The total number of 82,737 Inpatients admitted during the 5 years in the medical wards. This period formed the material for this present study. Even though some cases have come from Kadapa city proper, majority of patients are from the nearby rural areas. The patients were studied at

the time of admission to the wards and followed up in the hospital until recover or death. Broadly the patients are divided into two groups.

- Poisoning cases due to ingested poisons.
- Poisoning cases due to snake and insect bites.

POISONING CASES DUE TO INGESTED POISONS The

criteria observed is :

- All patients with history of consumption of poison having positive and significant signs and symptoms.
- Patients with doubtful history of consumption of poison but with definite signs and symptoms of acute poisoning.
- Patients with history of consumption of poison but having no positive signs and symptoms of poisoning.

Even though the present study is not a clinical oriented study of poisoning cases, due importance is given for the diagnosis and the clinical manifestations in all cases at the time of admission, inquiry was made about the type and quantity of poison consumed, duration between consumption and onset of symptoms , any such attempts previously. All patients were asked to describe the symptoms like abdominal pain, loose motions, vomiting, dizziness, vertigo and any other general symptoms. In most of the cases history regarding the manner of poisoning was elicited either from the patient himself/herself or the close relative. **Clinical examination was done under the following heading:** General physical examination:

The vital signs like pulse rate, blood pressure, respiratory rate and level of consciousness were noted in all cases of poisons. The state of the eyes, pupils, tongue and skin were checked. A thorough search was made for the presence of any suicidal or homicidal injuries over the body in all cases.

Systemic examination: A detailed examination of central nervous system, cardiovascular system, respiratory system and abdomen was carried out giving due merit to individual cases. When once the diagnosis of poisoning is made treatment is instituted on general lines followed by specific therapy according to the

individual cases. The treatment of the patient carried out under the following guidelines:

- Removal of unabsorbed poison from the body.
- Administration of antidotes.
- Elimination of poison by excretion.
- Symptomatic treatment.

In case of death of the patient the body was subjected for postmortem examination.

POISONING CASES DUE TO SNAKE AND INSECT BITE The inclusion criteria

1. All patients with history of bites having positive and significant signs and symptoms due to poisonous creatures like snakes, scorpions, bees and insects. But for the purpose of discussion only the snake bite cases are included.

2. Patients with doubtful history of bites due to poisonous creatures but with definite acute onset of signs and symptoms locally or systemically.

Exclusion criteria:

Patients with history of bite but having no signs and symptoms either locally or systemically.

At the time of admission inquiry is made about the type of snake, site of bite, time of bite, interval between bite and medical aid and the manner of snake bite.

The presence of two definite puncture wounds with progressive swelling and tenderness with persistent bleeding was taken as poisonous bite, whereas inverted 'U' shaped or multiple teeth marks with mild non-progressive swelling confined to the site of bite with minimum bleeding which stopped on its own were considered to be due to non-poisonous snake bite.

The presence of pain, numbness, tenderness,

neuromuscular, haematotoxic signs and symptoms were also considered for differentiation of poisonous and non-poisonous snake bites.

Once the diagnosis of poisonous snake bite is made, first aid treatment followed by specific therapy was instituted for all the cases.

During the study, the viscera and the vomited matter was sent to the chemical examination, F.S.L Kurnool. In most of the cases, the poison was not detected as per the chemical examiner's report. Hence, not much importance was given to the report and the only consideration is given to the history, inquest report, circumstantial evidence, signs and symptoms as noted in the patient's hospital case sheet and above all postmortem findings.

Findings

Incidence of poison:

In the analysis 900 poisoning cases admitted to medical wards in Govt. General Hospital, Kadapa (AP) during 2015 to 2019, which includes both ingested poisons and poisons due to snake and insect bites, the incidence of poisoning was observed to be (1.08%) The total number of hospital admissions during this period was 82,737.

Classification of cases:

For the purpose of better study, the cases were divided into two groups: I. Poisoning cases due to ingested poisons.

II. Poisoning cases due to snake and insect bites.

The present study shows that 762(86%) of ingested poisons and 138 (14%) of snake bites and other insect bites.

POISONING CASES DUE TO INGESTED POISONS a)

Commonest type of poison used (Table No.1&2):

Table No.1: Type of poison used

Sl. No	Poison used	No. of Cases	Percent age		Sl.No Poison used	No of cases	Percent age
1	Acid	10	1	26	Multi Drugs	4	0.4
2	Acu, Alco, Intox	1	0.1	27	Musquito repelliant	1	0.1
3	All out	1	0.1	28	Nerium Odorum	6	0.6
4	Alluminum phosphate	4	0.4	29	NPSB	18	1.8
5	Aalprax Tablet	16	1.6	30	Oliander Seeds	1	0.1
6	Aluminium Sulphate	1	0.1	31	OPC	382	50.1

7	Antidepressant	1	0.1	32	Paracetmal Tablet	4	0.4
8	Antenolal	2	0.2	33	Phenobarbital Tablets	2	0.2
9	Avil Tablets	2	2.2	34	Phenol	6	0.6
10	Baygon Spray	2	0.2	35	Phosphorus	1	0.1
11	Bendadryl syrup	1	0.1	36	PSB	83	8.3
12	Benzodiazepens	2	0.2	37	Rat Poison	13	1.3
13	Brake oil	1	0.1	38	Restil Tablets	3	0.3
14	Carbamazapine tablets	7	0.7	39	Scorpion Sting	37	3.7
15	Compose Tablets	1	0.1	40	Sleeping Tablets	3	0.3

Cont... Table No.1: Type of poison used

16	Daonial Tablets	5	0.5	41	Sorbitrate Tablets	1	0.1
17	Daturaseeds	3	0.3	42	Super vasmol	50	7
18	Dettol	3	0.3	43	Tagretal Tablet	1	0.1
19	Diazepam Tablet	6	0.6	44	Trika Tablet	3	0.3
20	Eptoin Tablets	2	0.2	45	Unknown	66	7
21	Food Poison	2	0.2	46	Unknown Tablet	10	4.8
22	Gamaxine	8	0.8	47	Vadesaku	11	1.1
23	Gardinal 300mgtablets	6	0.6		Total	900	100.0
24	Hair Dyie	4	0.4				
25	Lorazepam Tablets	5	0.5				

Table No.2: Commonest type of poison used

S.No.	Poison	No of cases	Percentage
1.	OPC	382	50%
2.	Tablet	101	13%
3.	Unknown	66	9%
4.	SuperVasmo l	50	7%
5.	Others	163	21%

To prevent such higher incidence of exposure and deaths due to poisoning, the laws related to the poisons have to be made stringent and people must be educated and sensitized about hazards of house hold and agricultural poisons as well as snakebites.

The present study shows that 50%. of the total poisoning were due to Organophosphorus compounds

which include insecticides. The second commonest poison was Tablet poisoning 13%. The third commonest poison was unknown 9%. The fourth commonest poison was Super vasmol 7%.

Poisoning Due to Snake And Insect Bites Total**Table No.3: Total Incidence**

Snakebites	No of Patients	Percentage
PSB	83	60%
NPSB	18	13%
Other (Scorpion sting)	37	27%
Total	138	100.0

Table No.4: Incidence of type of snake bite

Snake Bites	No of Patients	Percentage
PSB	83	82%
NPSB	18	18%
Total	101	100.0

Out of 900 cases of poisoning admitted in medical wards of GGH, Kadapa, 2015 to 2019, the total number of poisoning cases due to snake bite and insect bites were 144. This constituted 14% of the total cases studied.

Discussion / Conclusion

Poisoning cases due to ingested poisons:

a) Commonest type of poisons used:

In our study it was observed that 50% of the total poisoning cases were due to insecticides which include organo phosphorus compounds. The second commonest poisoning was Tablets (13%). The third commonest poison was unknown (9%) the fourth commonest poison was super vasmol (7%). The use of OPC poisons was found to be comparatively more in our study. An observation made by De-Alwis L.B et al⁵ 1988 in Srilanka showed that (78.08%) of the poisonings were due to insecticides and OPC. However, the study conducted by Chirasirisap K et al⁶ showed the major types of poisoning to be insecticides 27.2%. misused therapeutic drugs 19.0% and household chemicals 10.1%.

Tunwashe O.L et al⁷(1985) have observed that among 146 cases of acute poisoning-cases 82.6% were suicidal, 15.8% were accidental and 1.4% were homicidal in nature. Observations made by Petersen-H et al⁸(1977) found that suicidal poisoning were frequent

among females 70% and in males 43%.

Dattarawal S.K ,et al⁹ observed the manner of death due to poisoning was unclear in the most of cases, but where the manner is known, suicide accounted for 58% of death, commenting that the poison is of choice for suicide is organophosphorus compound.

Snake and Insect Bites

Total incidence of snakebites (Table No-3 & 4):

During the present study conducted from 2015 to 2019 the total number of poison cases admitted to medical wards in Govt. general Hospital Kadapa(AP) was 900. During this period 138 cases of snake bite and Insectbites were studied among the medical admissions. This constituted 14% of all poison cases admitted during this period, the total number of hospital admissions during this period was 82,737. Based on this, the incidence of snake bite was observed to be 142 Per 100000 patients.

A similar study during 1970-1974 was conducted by Banerjee and siddiqui¹⁰ (1976) in Safdarjang Hospital, New Delhi. Their hospital incidence was observed to

be 133 per 100,000 patients. A higher incidence in our study may be due to vast agricultural lands in and around the city of Kadapa where farming is the main occupation.

In our study it was found that 82% of the total bites were poisonous, while the remaining 18% were non poisonous. Observations were made by Banerjee. R.N. et al⁷(1974) in Safdarjang Hospital, New Delhi was poisonous snake bites 24.28% were non poisonous snake bites 75.72%. Sawai et al¹¹(1974) also has made similar observations. The incidence of type of snake bite may vary in different regions of the country according to the prevalent species of snake.

900 poisoning cases admitted in medical wards of Govt.General Hospital, Kadapa were studied for the various parameters like the commonest type of poison encountered, the incidence of poisoning, the common age group involved, the occupational incidence, the urban and rural incidence the manner of poisoning and the mortality rate.

The incidence of poisoning which include both ingested poisons and snake-bites was 1.37% among the total hospital admissions during the five years.

I. Poisoning cases due to ingested poisons:

- The commonest poisons consumed were Organophosphorus compounds (50.%) and tablet poisoning (13%). The third commonest poison was unknown (9%) the fourth commonest was super vasmol (7%).

II. Poisoning due to snake and insect bites:

The incidence of poisoning due to snake bites and insect bite (scorpion sting) was (14%) of the total poisoning cases studied.

- Poisonous snake bites are seen in (82%) of the total snake bite cases as against (18%) of the non poisonous snake bites.

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Conflict of Interest – Research work

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