

# ACCIDENTAL POISONING IN SOUTH WEST MAHARASHTRA

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## ABSTRACT

*A retrospective analysis of accidental poisoning (oral and parenteral) in children admitted to the Pediatric Ward of Krishna Hospital and Medical Research Centre, Karad over the past five years (1984-1988) was done. Overall incidence of accidental poisoning in children was 1.8% (oral 1%, parenteral 0.8%). Mean age of children was 6.5 years, with male-female ratio 2 : 1. Oral poisoning was more common in children below 5 years whereas parenteral poisoning was common in children above 5 years. Kerosene oil was the commonest oral poison (30%). Oral poisoning was more common in summer (61%) and parenteral in the rainy season (51%). Rural children were more commonly involved than urban children (ratio being 5 : 2). Gastrointestinal symptoms were commoner with oral poisons. No mortality was noted with oral poisons; 3% children died due to snake bite.*

**Key words:** *Accidental poisoning, Snake bite.*

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Accidental poisoning is a common emergency in children. It may be as a result of oral ingestion of poisonous substances (household products, pesticides, chemicals and drugs) or parenteral poisoning (bites by snakes, scorpions, insects or various unidentified creatures).

In India, the incidence of oral poisoning varies from 7.6% in Southwest India(1) to 0.33% in North India(2). Mortality due to oral poisoning increases with age(2).

There is paucity of literature about the incidence of snake bites in India; estimates put it at 200,000 per year with a mortality rate of 10%(3). The present study was done to update trends in poisoning.

## Material and Methods

A retrospective study was carried out in Krishna Hospital and Medical Research Centre, Karad, in Southwest India, catering to a population of over a million in a radius of 150 miles. Records of all poisoning cases admitted in the children ward (ages 0-14 years) were analysed from January, 1984 to December, 1988.

## Results

Of the total 29,452 admissions, 3,577 were in the Pediatric Ward, of which 65 (44 males and 21 females) had accidental poisoning (Table I). The mean age was 6.5 years with male-female ratio of 2:1. Oral poisoning was twice as common in children under 5 compared to bites, which was 8 times as common in children above 5 years (Table II).

*Seasonal variation:* Overall incidence was 43% in summer (February-May), 37% in the rainy season (June-September) and 20% in winter (October-January). Oral poisoning was common in summer (61%)

TABLE I—Year-wise Incidence of Different Groups of Poisons

Year	1984	1985	1986	1987	1988	1984-1988	Total
Admission in Pediatric ward	584	541	666	1089	1197	3577 (%)	(%)
<b>1. Oral</b>							
(a) Food poisoning	2	—	—	4	2	8 (22)	12
(b) Kerosene oil	—	—	1	5	5	11 (30)	17
(c) Organophosphorus	—	1	2	4	—	7 (19)	11
(d) Poisonous seeds	1	—	—	1	—	2 (5)	3
(e) Chemicals	—	—	1	1	2	4 (11)	6
(f) Drugs	—	—	—	3	—	3 (8)	5
(g) Miscellaneous	—	1	—	—	—	1 (3)	2
	3	2	4	18	9	36 (55.4)	—
<b>2. Parenteral (Bites)</b>							
(h) Snake	—	2	5	8	5	20 (69)	31
(i) Scorpion	—	—	—	2	1	3 (10)	5
(j) Insect	—	—	1	—	—	1 (3)	2
(k) Unknown	—	—	—	5	—	5 (14)	8
	—	2	6	15	6	29 (44.6)	—
Total (% of total pediatric ward admissions)	3 (0.5)	4 (0.7)	10 (1.5)	33 (3)	15 (1.2)	65 (1.8)	

and parenteral poisoning in the rainy season (51%).

*Urban/Rural variation:* Accidental poisoning was more common in rural children (rural-urban ratio 5:2). In both groups, males outnumbered females(2:1).

Oral poisoning was twice as common as parenteral poisoning in urban children and almost equally distributed (Table III).

*Time interval between poisoning and hospitalization:* Urban patients were brought to the hospital much earlier (mean 2 h) than those from rural areas (mean 7 h), with the overall time interval between poisoning and reports to the hospital being 5½ hours. Children with parenteral poison-

ing were brought earlier than those with oral poisoning.

*Type of poisoning:* Snake bite was commonest (31%), followed by kerosene oil poisoning (17%) (Table I). Ingestion of corrosive substances did not figure in our patients.

*Clinical features:* Gastrointestinal symptoms predominated following oral poisoning, vomiting being the commonest. Swelling at the site of bite was the commonest symptom in the parenteral group; respiratory and neurological manifestations also occurred. Unconsciousness was noticed in very few cases.

TABLE II—Age and Sex-wise Distribution of Poisoning

Type of poisoning	0-5 yrs		5-14 yrs		Total
	M	F	M	F	
Oral	11	14	8	3	36
Parenteral	2	1	22	4	29
Total (%)	13 (20)	15 (23)	30 (46)	7 (11)	65

TABLE III—Urban/Rural Distribution of Poisoning

Type of poisoning	Urban		Total	Rural		Total	Grand Total
	M	F		M	F		
Oral	8	4	12	12	12	24	36
Parenteral	4	2	6	18	5	23	29
Total (%)			18 (28)			47 (72)	65

**Mortality:** One death (3%) due to snake bite was recorded.

### Discussion

Accidental poisoning in children is a universal phenomenon but age, incidence, type and nature of poisoning vary from area to area. In India the incidence of oral poisoning has been reported to be about 1% (4), with a similar incidence noticed in the present study also. The overall incidence of parenteral poisoning was about 0.8% (0.6% were snake bites). The reported incidence of snake bite in another study was 1.6% (5).

The incidence of accidental oral poisoning in hospital admissions appears to have declined considerably from 7.6% reported by Buhariwalla and Sanjanwalla (1) in 1969, also from South-west India to the 1% in the present study.

Some factors causing this decrease may be increased literacy rate, urbanization, and better health services at the peripheral health centres.

Oral poisoning was more common in children under five years, while parenteral poisoning was frequently observed above 5 years ( $p < 0.001$ ). A similar age distribution has been reported from the developed countries (6). Ghai (4) reported that about 12% of all cases of oral poisoning occur in children below 1 year and 60% below 3 years of life. Snake bites and other bites were commoner in children above 5 years as they prefer playing outdoor games.

The overall male : female (M : F) ratio of 2:1 in this study is comparable to other reports from different parts of India (7-10). M:F ratio in parenteral poisoning is about 3:1, there are no comparable reports in Indian literature. Comparative analysis of incidence of various oral poisons observed

TABLE IV—Comparative Analysis of Incidence of Oral Poisoning

Oral poisoning	Incidence	
	Present study (%)	Indian literature (%)
1. Kerosene oil	30	40 (7)
2. Food poisoning	22	6.6 (11)
3. Organophosphorus compounds	19	9.5 (7)
4. Chemicals	10	13 (8), 36 (7)
5. Dhatura seeds	5	4 (11), 6 (7)
6. Herbs and shrubs	3	24 (12)

in the present study and available Indian literature is shown in *Table IV*.

There was no mortality due to oral poisoning in the present study compared to 0.8% reported by Khatri *et al.* (9). One case (3%) in our series expired due to snake bite, comparable with the 5% mortality due to snake bite reported by Lahori *et al.* (5).

Though the incidence of oral poisoning in children has declined due to increased literacy, urbanization and better child care by mothers as well as health personnel, the absolute number may not appear grossly reduced.

Accidental poisoning in children is preventable. Early detection and first aid measures at the site of poisoning need to be stressed. Public education to keep toxic substances out of reach of children is important. Similarly, outdoor games or walking in fields and jungles barefoot should be discouraged, specially during summer and rains. More community surveys must be planned to find the magnitude of the problem in different areas. Regional toxicological centres with well equipped laboratories to treat, guide and conduct research in the problem will be helpful.

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## NOTES AND NEWS

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### NATIONAL PEDIATRIC NEPHROLOGY UPDATE-1991

A National Pediatric Nephrology Update—1991 is being organized under the auspices of Indian Pediatric Nephrology Group of IAP, Department of Nephrology, Institute of Child Health, Madras; Department of Nephrology, Child's Trust Hospital, Madras and Tamil Nadu State Branch of IAP on *24 and 25, August 1991*. The delegate fee is Rs. 200/-. Add Rs. 10/- for out-station cheques which are to be drawn in favour of National Pediatric Nephrology Update—1991.

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