POISONING IN CHILDREN

Niayaz A. Buch
Kaisar Ahmed
A.S. Sethi

ABSTRACT

This study is a retrospective analysis of 670 cases of poisoning (including phenothiazine toxicity) admitted to this hospital in the past six years, accounting for 0.9% of all pediatric admissions. Nearly half (45%) of the cases were in the age group of 1-4 years. Medicines and chemicals were the commonest agents (53%), followed by pesticides (15%), kerosene (11.2%), plant poisons (9.4%), food poisoning (3.9%) and corrosives (1.9%). Accidental poisoning was the commonest (70%) followed by iatrogenic (29.6%) and suicidal (0.4%). Overall mortality was 1.8%. Stress is laid on judicious use of phenothiazines as antiemetics and replacing them with drugs of lesser toxicity.

Key words: *Poisoning, Phenothiazine toxicity.*

From the Department of Pediatrics, Government Medical College, Srinagar.

Reprint requests: Dr. Niayaz A. Buch, Rangparistan, Rainawari, Srinagar, Kashmir 190 003.

Received for publication March 5, 1990; Accepted August 1, 1990

Poisoning is a pediatric emergency, and a thorough knowledge about the nature and magnitude of the problem, especially when associated with regional peculiarities is necessary. Periodic reports(1-8) from various centers reveal the much needed information and changing spectrum. Phenothiazines, a commonly prescribed group of drugs, need much attention because of acute toxicity, accounting for a large number of emergency admissions.

Material and Methods

This study was conducted in the Government Hospital for Children, Srinagar, the major referral hospital for pediatrics, catering to the whole Kashmir Valley. This study is a retrospective analysis of cases of poisoning, including phenothiazine toxicity, admitted to this hospital during six years (January, 1983 to December, 1988).

Results

During this period, of 71,728 admissions, poisoning accounted for 670 cases (0.9%) (*Table I*). Accidental poisoning accounted for 469 (70%) cases, iatrogenic in 198 (29.5%) and suicidal intent in 3 cases (*Table II*).

Age, Sex and Area Distribution: Two thirds (67.6%) of the cases were under the age of five years, and 22.5% were infants. Only 10.4% were in the age group of 9-12 years. The male female ratio was 1.25 : 1 and urban ratio was 1.13 : 1. Nature of poisoning is detailed in *Table III*.

Clinical Presentation: Clinical features noted at the time of admission were:

1. Convulsions: 21 cases (7 phenothiazines, 7 plant poisons, 6 kerosene, 1 phenytoin).
2. Respiratory distress: 15 cases, all due

TABLE I--*Yearwise Distribution, Number and Mortality Rate*

Year	Admissions	Poisoning		Mortality	
		No.	%	No.	%
1983	11,484	67	0.6	1	1.5
1984	10,320	114	1.1	2	1.8
1985	9,228	102	1.1	1	1.0
1986	16,821	99	0.6	1	1.1
1987	11,747	106	0.9	3	2.8
1988	12,128	182	1.5	4	2.2
Total	71,728	670 (470*)	0.9 (0.7*)	12	1.8

*After excluding cases of phenothiazine toxicity.

TABLE II--*Modes of Poisoning in Different Age Groups*

Poisoning	Age groups (years)				Total	Percentage
	1	1-4	5-8	9-12		
Accidental	53	256	117	43	469	70.0
Suicidal	—	—	—	3	3	0.4
Iatrogenic	98	46	30	24	198	29.6

to hydrocarbons (particularly kerosene).

3. Coma: 11 cases (3 codeine, 2 plant poisons, 2 phenobarbitone, 2 unknown drug, 2 phenothiazine).
4. Acidosis: 1 (aspirin).
5. Ataxia: 5 cases (phenothiazine).

Mortality Rate: Overall mortality rate was 1.8%. Three of the twelve fatalities were due to codeine, two each due to phenobarbitone and pesticides, and one each due to opium, wild seed, phenothiazines, noscapine and kerosene oil. Seven deaths were in infants, four in the age group of 1-4 years and one in the age group of 5-8 years.

Discussion

The incidence of poisoning has shown considerable variation, with reported incidence ranging from 2.0 to 5.1%(1-8). The lesser incidence of 0.9% in the present series is probably due to better medical facilities and pediatricians being available in the peripheral areas.

Kerosene oil remains the commonest household substance involved in accidental ingestion; it accounted for 16% of our cases, though other studies(7,8) have reported an incidence of 33.7 and 55%. Kerosene oil ingestion results in toxicity of gastrointestinal, respiratory and central nervous system(6,10). Eight per cent cases presented with convulsions and of those cases who had ingested hydrocarbons in the form of kerosene oil, petrol, diesel, spirit or machine oil, 15 had signs of consolidation in the chest.

TABLE III—*Age, Area and Sex Distribution in Various Groups of Poisoning*

Nature of poison	Age groups (years)				Area		Sex		Total	%	%*
	<1	1-4	5-8	9-12	U	R	M	F			
Phenothiazines	92	38	38	32	70	130	79	121	200	29.9	–
Other medications & chemicals	34	79	29	13	98	57	96	59	155	23.1	33.0
Kerosene	7	59	8	1	52	23	59	16	75	11.2	16.0
Other hydrocarbons	–	9	4	–	9	4	5	8	13	1.9	2.8
Food	–	9	12	5	23	3	15	11	26	3.9	5.5
Corrosives	–	9	2	2	9	4	3	10	13	1.9	2.8
Pesticides	14	54	26	7	58	43	63	38	101	15.1	21.5
Plants	1	32	24	6	20	43	38	25	63	9.4	13.4
Miscellaneous	3	13	4	4	17	7	15	9	24	3.6	5.0
Total	151 (22.5)	302 (45.1)	147 (21.9)	70 (10.4)	356 (53.1)	314 (46.9)	373 (55.7)	297 (44.3)	–	–	–

U = Urban, R = Rural, M = Male, F = Female
Percentages are given in parentheses.
*Percentages reported after excluding cases of phenothiazine toxicity.

Pesticide poisoning has shown an appreciable rise (21.5%) compared with previous reports(7,8) of 4.9 to 9.2%. Rat poisons and organophosphorous compounds like Tik-20 and Finit (fenitrothium) increasingly being used for pest control in houses were found to constitute more than 70% of these cases. Organophosphorous compounds are frequently used in the valley for fruit crops and accounted for more than 20% of cases.

Plant poisons constituted 13.4% of poisoning cases; about 80% of them being due to Dhatura poisoning and the remaining due to wild seeds which were identified as those of *Coriaria myrtifolia*. The fruits commonly known as Masoori berry are poisonous and were earlier used to make fly poisons. The patients presented with symptoms typical of tetanus. All except one had an uneventful recovery: the lone fatality was due to wild seed poisoning (*Coriaria myrtifolia*).

Food poisoning presented in groups. Earlier studies(3,6,8,9) have reported incidence ranging from 6.6% to 42.3%; while in the present study it was 5.5%. This low incidence is probably due to climatic conditions of the valley. Unlike a previous study(8), no mortality was observed by us due to food poisoning.

Corrosive poisoning was the least common(2.7%), mostly due to caustic soda; one child had taken hydrochloric acid. The cases were managed conservatively and recovered without any complications.

Medications and chemicals were responsible for the maximum number of cases (33%). Though not yet posing a major threat as in developed countries(11),

the proportion was definitely higher than reported earlier(7,8). Codeine as cough suppressant was taken by 8.3% cases and was responsible for 25% mortality. Most of the patients (80%) were infants. Poisoning was accidental or iatrogenic (26%), *i.e.*, due to practitioners' negligence. Opium containing medicines given for excessive crying or diarrhea accounted for 3.9% of poisoning cases and was responsible for one death. Phenobarbitone poisoning was more in the present study (6.5%) than earlier work(8) and accounted for 16.7% mortality.

Three children (11 year and 12 year old boys and an 11 year old girl) with suicidal tendencies had taken phenobarbitone, amitryptilene and diazepam, respectively. These few cases predict an alarming situation which may arise in near future due to prevailing socio-economic and environmental factors and the parental attitude towards their children.

Phenothiazine toxicity was responsible for a large number (29.9%) of emergency admissions in the present study. Toxicity was seen most often after taking trifluperazine (Siquil) or metaclopramide, either parenterally or orally. A third of the cases had toxicity even with therapeutic doses. In 80% cases, drugs had been given on the advice of general practitioners and qualified pediatricians. Toxicity manifested as convulsions, coma, ataxia, occulogyric crisis and neck retraction. One 20 day old neonate was given metoclopramide drops, expired. Therefore, one should rethink about prescribing these drugs, particularly in younger children. An alternative with minimum toxicity like domperidone(13) can be used if needed.

To conclude, keeping drugs out of the reach of children, storing the household fuel like kerosene safely, providing immediate medical aid when poisoning occurs and last but not least, prescribing more carefully would go a long way in preventing morbidity and hospital admissions and mortality.

REFERENCES

1. Santhanakrishnan R, Balagopal RV. Poisoning in childhood. Indian J Pediatr 1972, 39: 158-164.
2. Talati S, Gandhi VK. Accidental poisoning in children. Pediatr Clin India 1973, 8: 65-70.
3. Agarwal V, Gupta A. Accidental poisoning in children. Indian Pediatr 1974, 9: 617-621.
4. Chatterjee B, Banerjee AP. Accidental poisoning in children. Indian Pediatr 1981, 18: 157-162.
5. Satpathy R, Das BB. Accidental poisoning in children. J Indian Med Assoc 1979, 73: 190-192.
6. Buhariwalla RJ, Sajanwalla. Poisoning in children: A study of 303 cases. Indian Pediatr 1969, 6: 141-145.
7. Sharma U, Saxena S. Accidental poisoning in children in Jaipur. Indian J Pediatr 1974, 41: 174-178.
8. Sitaraman S, Sharma U. Accidental poisoning in children. Indian Pediatr 1985, 22: 757-760.
9. Thakkar NP, Sureka PR. Kerosene poisoning: A clinical study. Pediatr Clin India 1980, 15: 23-25.
10. Report of Sub-Committee on Accidental Poisoning--Co-operative Kerosene Poisoning Study. Pediatrics 1962, 29: 648-679.
11. Scherz RG. Prevention of childhood poisoning. Pediatr Clin North Am 1970, 17: 713-727.
12. Dash HH, Qader A. Tincture opium poisoning in a neonate. Indian Pediatr 1988, 25: 904-905.
13. Cherian S, Sachdev HPS. Domperidone. Indian Pediatr 1989, 26: 932-935.