

Original research paper

A study on clinical profile of cases with organ phosphorus poisoning at a tertiary care hospital

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Abstract

In India OPC intake is the commonest method of suicide (40.5%) after hanging (49%). Hospital-based data suggest that barbiturates and copper sulfate were the commonly used agents for suicide in the years, 1972-1977; however, later they were replaced by OP compounds and aluminium phosphide. Organo phosphorus insecticides are responsible for as much as 75% of all poisonings in our country today. Observation method of primary source of information in the department of general medicine at. Secondary source of information from published articles, journals, books, case sheets, discharge summary, related websites are used in planning, developing, synopsis and during dissertation as supporting document. In our study, subjects predominantly had GI symptoms. 56% had pain abdomen, 42% had vomiting, 24% had Diarrhea, 26% had Sweating, 21% had Fasciculation and 15% had Bradycardia.

Keywords: Clinical profile, organ phosphorus poisoning, GI symptoms

Introduction

Self-inflicted violence accounts for almost half of the 1.6 million violent deaths that occur every year worldwide. About 63% of global deaths from self-harm occur in the Asia Pacific region. According to National Crime Records Bureau India, every 5 minutes a person commits suicide and 7 attempt to kill themselves, forming about 1,00,000 deaths per year. Suicide rate was highest in the state of Kerala. Majority of the victims belonged to the age group 14-34 Years and Organo Phosphorus Compounds (OPC) were the most common agent used for suicide purpose ^[1,2].

With the advance of times, pesticides are now a days widely used for modern cultivation methods. Hence, they are readily available as over the counter drugs even in village shops and act as common agents for suicidal purposes. Currently pesticide self-poisoning has become a major clinical problem of the developing countries killing around 3,00,000 people each year. Most of these deaths occur in rural areas, where easy access to highly toxic pesticides turns many impulsive acts of self-poisoning into suicide ^[3,4].

In India OPC intake is the commonest method of suicide (40.5%) after hanging (49%). Hospital-based data suggest that barbiturates and copper sulfate were the commonly used agents for suicide in the years, 1972-1977; however, later they were replaced by OP compounds and aluminium phosphide. Organo phosphorus insecticides are responsible for as much as 75% of all poisonings in our country today ^[5].

The gastrointestinal symptoms following Organophosphorus compound poisoning are

excessive salivation, nausea, vomiting, abdominal pain and diarrhea. Both in experimental studies and in humans exposed to these compounds pancreatic damage has been reported. Pancreatic injury in humans may be painless and marked by hyperamylasemia, elevated serum lipase, hyperglycemia and glycosuria. Occasionally, symptomatic acute pancreatitis can occur. The incidence of the latter varies from 7-22% depending on type of study and compound [6].

Methodology

Source of data

Observation method of primary source of information in the department of general medicine at. Secondary source of information from published articles, journals, books, case sheets, discharge summary, related websites are used in planning, developing, synopsis and during dissertation as supporting document.

Sample size: 100

Estimated based on the formula $4pq/d^2$ where p is the prevalence of Community acquired pneumonia in KR hospital for one year and $q = 1-p$ and $d=1.5$.

It will come to 97 and it was rounded off to 100.

Inclusion criteria

- Subjects who give written informed consent.
- Subjects aged more than 18 years.
- Subjects admitted with history of acute organophosphorus compound poisoning.

Exclusion criteria

- Patients with indication of exposure to an entirely different poison other than OP poison.
- Patients with double poisoning.
- Patients who have consumed poison along with alcohol.
- Patients who are chronic alcoholics.
- Patients who are confirmed cases of biliary tract disorders.
- Patient who are known case of pancreatic disorders.
- History of intake of drugs likely to produce pancreatitis. i.e. azathioprine, mercaptopurine, thiazides, frusemide, pentamidine.

Type of study: Hospital based cross section observational study.

Results

Table 1: Age distribution of subjects in present study

| Age Group (Years) | Number of Subjects | Percentage subjects of |
|-------------------|--------------------|------------------------|
| <20 | 04 | 4 |
| 20-29 | 36 | 36 |
| 30-39 | 36 | 36 |
| 40-49 | 12 | 12 |
| 50-59 | 9 | 9 |
| >60 | 3 | 3 |

In our study, maximum number of subjects (72%) were in the age group 20-39 years.,12% in 40-49 age group,9% in 50-59 age group,3% in >60 age group,4% in <20 age group. Mean age in male group is 34.83±11.43 years, in female is 29.64±8.63 years.

Table 2: Gender-wise distribution of subjects in present study

| Sex | Male | Female |
|--------------------|------|--------|
| Number subjects of | 73 | 27 |

Out of 100 subjects studied 73 percent of them were male and 27 percent of them were females.

Table 3: Table showing occupation of subjects

| Occupation | Number of subjects | Percentage of subjects |
|-------------|--------------------|------------------------|
| Agriculture | 61 | 61 |
| Housewife | 11 | 11 |
| Students | 13 | 13 |
| Others | 15 | 15 |

Out of 100 subjects, 51% were agriculturists, 11% were housewives,17% were students and 21% were from other occupations.

Table 4: Table showing type of compound consumed

| Type of compound | Number of subjects |
|------------------|--------------------|
| Chlorpyrifos | 33% |
| Dimethoate | 25% |
| Malathion | 12% |
| Profenfos | 10% |
| Monochrotophos | 13% |
| Others | 7% |

In our study, 33% subjects consumed Chlorpyriphos, 25%. Dimethoate, 12% Malathion, 13% Monochrotophos, 10% Profenfos.

Table 5: Clinical profile

| Symptoms and signs | Percentage |
|----------------------|------------|
| Nausea | 46 |
| Vomiting | 42 |
| Pain abdomen | 56 |
| Diarrhea | 24 |
| Sweating | 26 |
| Fasciculation | 21 |
| Bradycardia | 15 |
| Breathing difficulty | 40 |

In our study, subjects predominantly had GI symptoms. 56% had pain abdomen, 42% had vomiting, 24% had Diarrhea, 26% had Sweating, 21% had Fasciculation and 15% had Bradycardia.

Discussion

In our study a total of 100 subjects were studied during a period of one year who were

admitted with history of acute organophosphorus poisoning to K R Hospital Mysuru. Our study showed male preponderance in poisoning cases with 73% of them being males and 27% of females.

Most common age group who presented with poisoning is 21-40 years (72%). Most of the other studies showed 21-30 years as the most affected age group.

Table 6: Table showing most common gender affected compared with other studies

| Sex | Dubey <i>et al.</i> [7] | Badiger <i>et al.</i> [8] | Present study |
|--------|-------------------------|---------------------------|---------------|
| Male | 48% | 57.5% | 73% |
| Female | 52% | 42.5% | 27% |

Table 7: Table showing most common age group affected compared with other studies

| | Dubey <i>et al.</i> [7] | Badiger <i>et al.</i> [8] | Present study |
|-------|-------------------------|---------------------------|---------------|
| <20 | 5% | 27.5% | 4% |
| 21-30 | 40% | 37.5% | 36% |
| 31-40 | 27% | 23.8% | 36% |
| 41-50 | 13% | 5% | 12% |
| 51-60 | 8% | 5% | 9% |
| >60 | 7% | 6.2% | 3% |

In the present study most of the subjects were agriculturists (61%) followed by housewives (13%).

Table 8: Table showing occupation of the poisoning subjects in present study compared with other studies

| | Dubey <i>et al.</i> [7] | Badiger <i>et al.</i> [8] | Present study |
|----------------|-------------------------|---------------------------|---------------|
| Agriculturists | 21.7% | 63.25% | 61% |
| Students | 36.7% | 16.75% | 11% |
| Housewives | 23.3% | 8.75% | 13% |
| Others | 18.3% | 11.25% | 15% |

Table 9: Table showing type of compound consumed compared with other studies

| | Dubey <i>et al.</i> [7] | Badiger <i>et al.</i> [8] | Present study |
|----------------|-------------------------|---------------------------|---------------|
| Chlorpyrifos | 21.7% | 23.4% | 33% |
| Dimethoate | 5% | 21.9% | 25% |
| Malathion | 46.7% | 7.8% | 12% |
| Profenfos | 6.7% | 18.5% | 10% |
| Monochrotophos | 4.3% | 12.5% | 13% |
| Others | 15.6% | 15.9% | 7% |

In our study, majority of patients consumed Chlorpyrifos (33%), followed by Dimethoate (25%) and Monochrotophos (13%).

Conclusion

- Most of the subjects were in the age group of 20-39 years.
- Maximum number of subjects were Agriculturists (61%) followed by housewives (13%).
- Majority number of subjects consumed chlorpyrifos (33%) followed by Dimethoate (25%).
- Majority of patients had GIT symptoms at presentation.

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