

A RETROSPECTIVE STUDY OF INCIDENCE, CLINICAL PRESENTATION AND TREATMENT OUTCOME OF ORGANOPHOSPHORUS POISONING IN KONASEEMA REGION OF ANDHRA PRADESH

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ABSTRACT

BACKGROUND

Organophosphorus compounds are highly toxic to human and it is easily available. So suicidal, homicidal and accidental poisoning incidence has increased in these 4 to 5 decades. Toxic effects of these compounds are associated with significant morbidity and mortality. Their ease of access and sociocultural factors play important role in selecting them as a self-poison.

MATERIAL AND METHOD

Present study is a hospital based retrospective study conducted during June 2013 to Dec 2016 in the Dept. of General Medicine, Konaseema Institute of Medical Science, Amalapuram.

RESULT

During three and half years of study, sixty two patients were admitted with organophosphorus poisoning. Out of them, 36 were between 15 to 45 years of age and 6 were below 15 years of age. Male patients were more than female, that is 46 and 16. Most of the patients were from rural area that is fifty out of sixty two. Pulmonary oedema was the common complication that is 16. Respiratory failure and aspiration pneumonia was present in 12 and 10 patients respectively. Eight patients presented with intermediate syndrome. Two patients developed neurological complication.

DISCUSSION AND CONCLUSION

Respiratory complication was the most common presentation that is in the form of pulmonary oedema, respiratory failure and aspiration pneumonia; that is 25%, 19% and 16% respectively, which is similar to the study of other authors, intermediate syndrome was also present in 12.90% of cases. Easy availability of this insecticide is another problem. Educating the people and strong regulatory condition is required to decrease the incidence.

KEYWORDS

Organophosphorus poisoning, Konaseema, Treatment outcome.

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INTRODUCTION: All of us know that our population is increasing very fast and to overcome the food deficit, agricultural yield need to be increased. Keeping all these things in mind, the revolution began in 1960 called green revolution of India. The idea was to increase agricultural yield by using modern techniques, hybrid seeds, fertilisers and pesticides.

Pesticides are substances meant for attracting, reducing and then destroying any pest.⁽¹⁾ The pests include insects, plant pathogens, weeds, molluscs, birds, mammals, fish, nematodes and microbes. So pesticides can be classified by

target organism.⁽²⁾ Out of all pesticides family, insecticides are used frequently and this family includes organochlorines, organophosphates and carbamates.⁽³⁾ Organophosphates and carbamates largely replaced organochlorines, both operate through inhibiting the enzyme acetylcholinesterase and potentiation of acetylcholine.⁽⁴⁾

All these compounds are highly toxic to humans and it is easily available. So suicidal, homicidal and accidental poisoning incidence has increased in these 4 to 5 decades. Toxic effects of these compounds are associated with significant morbidity and mortality. Their ease of access and sociocultural factors play important role in selecting them as a self-poison.⁽⁵⁾ Present study is hospital based retrospective study to know the incidence, clinical presentation and outcome of poisons.

MATERIAL AND METHOD: Present study is a hospital based retrospective study conducted during June 2013 to Dec 2016 in the Dept. of General Medicine, Konaseema Institute of Medical Science, Amalapuram. All the patients

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having history of organophosphorus poisoning admitted in our hospital have been included into the study. Before start of the study, written permission was taken from the competent authority. All the information about the patients was obtained from inpatient case sheet and data was interpreted as percentage.

RESULT: During three and half years of study, sixty two patients were admitted with organophosphorus poisoning. Out of them, 36 were between 15 to 45 years of age and 6 were below 15 years of age. Male patients were more than female, that is 46 and 16. Most of the patients were from rural area that is fifty out of sixty two. Cases were more in May to August month than other months and mostly between 12 pm to 12 am. Married were more than unmarried that is 40 and 20 respectively. By occupation, 24 were farmers, 12 were manual labourers, and 20 were house wives. Forty patients have education below 10th standard and 58 cases were suicidal in nature.

| Basic Character | Sub Categories | Number | Percentage |
|-------------------|----------------|--------|------------|
| Age | 0-15 yrs. | 6 | 9.60% |
| | 15-45 yrs. | 36 | 58.00% |
| | >45 yrs. | 20 | 32.2% |
| Sex | Male | 46 | 74.20% |
| | Female | 16 | 25.80% |
| Locality | Rural | 50 | 80% |
| | Urban | 12 | 20% |
| Time | 12PM - 12AM | 40 | 64.51% |
| | 12AM - 12PM | 22 | 35.5% |
| Month | Jan to April | 22 | 35.5% |
| | May to August | 38 | 61.2% |
| | Sept to Dec | 12 | 3.2% |
| Marital status | Married | 40 | 64.5% |
| | Unmarried | 20 | 32.2% |
| | Widower | 2 | 3.2% |
| occupation | Farmer | 24 | 38.70% |
| | Manual | 12 | 19.35% |
| | Housewife | 20 | 32.20% |
| | Student | 2 | 3.20% |
| | Others | 4 | 6.40% |
| Education | Below class 10 | 40 | 64.35% |
| | Above class 10 | 22 | 35.60% |
| mode of poisoning | Suicidal | 58 | 93.54% |
| | Accidental | 4 | 6.40% |

Table 1: Demographic parameters of organophosphorus poisoning

| Symptoms | Numbers | Percentage |
|------------------|---------|------------|
| Nausea/Vomiting | 50 | 80.64% |
| Salivation | 48 | 77.44% |
| Sweating | 46 | 74.10% |
| Abdominal cramps | 36 | 58.06% |
| Diarrhoea | 20 | 32.20% |
| Breathlessness | 18 | 29.03% |

| | | |
|----------------------|----|--------|
| Cough | 16 | 25.80% |
| Urinary incontinence | 7 | 11.29% |
| Faecal incontinence | 7 | 11.29% |
| convulsion | 6 | 9.60% |

Table 2: Symptoms of organophosphorus poisoning

| Character | Number | Percentage |
|-------------------------------|--------|------------|
| Miosis | 56 | 90.32% |
| Bradycardia | 28 | 45.16% |
| Tachycardia | 26 | 41.9% |
| Arrhythmia | 6 | 9.60% |
| Disorientation | 16 | 25.80% |
| Muscular twitch/fasciculation | 10 | 16.12% |
| Tachypnoea | 14 | 22.58% |

Table 3: Sign of organophosphorus poisoning

| Character | Number | Percentage |
|---------------------------|--------|------------|
| Pulmonary Oedema | 16 | 25.80% |
| Respiratory Failure | 12 | 19.35% |
| Aspiration Pneumonia | 10 | 16.12% |
| Intermediate syndrome | 8 | 12.90% |
| Neurological complication | 2 | 3.2% |

Table 4: Complications of organophosphorus

| Character | Number | Percentage |
|-----------|--------|------------|
| Recovered | 48 | 77.41% |
| Death | 14 | 22.58% |

Table 5: Outcome of treatment

From table 2, it is clear that regarding symptoms of organophosphorus poisoning, 50 patients were presented with vomiting, salivation and sweating were present in 48 and 46 patients. Thirty six patients presented with abdominal cramps. Diarrhoea, breathlessness and cough was present in 20, 18 and 16 patients. Urine and faecal incontinence patients were seven each. Six patients were presented with convulsion.

Miosis was most common sign of organophosphorus poisoning. Twenty eight patients presented with tachycardia, 26 patients presented with bradycardia and 6 patients having cardiac arrhythmia. Tachypnoea was present in fourteen patients. Disorientation and muscular twitch, fasciculation was present in seven patients.

As per table 4, it is clear that pulmonary oedema was the common complication that is 16. Respiratory failure and aspiration pneumonia was present in 12 and 10 patients respectively. Eight patients presented with intermediate syndrome. Two patients developed neurological complication.

DISCUSSION: In our study, we found that most of the patients were between age group 15 to 45 years that is 58% and male were common than female that is 74.2%, which is similar to the work of Thunga et al.⁽⁶⁾ 80% of the patients were from rural background, it was most common in married and farmers than other people that is 64% and 38.7%

respectively. 93.54% of cases were suicidal cases. Incidence was higher during agricultural season, these findings are similar to the work of other authors.^(7,8) Most of the patients present between 12 p.m. to 12 a.m. that is 64.51%.

Regarding clinical symptoms, vomiting was common symptom that is 80.64%, followed by sweating and salivation that is 77.44% and 74.11% respectively, urinary and faecal incontinence was found in 11.29% each patient, which is similar to the study of Indernil et al.^(8,9,10) Miosis was the most common sign followed by cardiac abnormality in the form of tachycardia, bradycardia and arrhythmia. Muscular fasciculation and disorientation was present in 25% and 16% patients.

Respiratory complication was most common presentation that is in the form pulmonary oedema, respiratory failure and aspiration pneumonia, that is 25%, 19% and 16% respectively which is similar to the study of other authors, intermediate syndrome was also present in 12.90% of cases.^(11,12,13,14) Out of all patients, mortality was 22.58% which is still high.

CONCLUSION: Organophosphorus poisoning is still a challenge for our health system. Even with the availability of good ICU care death rate is high. Most important thing is young working people are victims. Easy availability of this insecticide is another problem. Educating the people and strong regulatory condition is required to decrease the incidence.

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