

CORRELATION OF SERUM AMYLASE WITH OUTCOME IN ACUTE ORGANOPHOSPHOROUS POISONING

Sohan B¹, Hamsa Manasa K²

¹Assistant Professor, Department of General Medicine, Sri Siddhartha Institute of Medical sciences & Research Centre, T.Begur, Nelamangala Taluk, Bangalore, Karnataka, India

²Senior Resident, Department of Paediatrics, Adichunchanagiri Institute of Medical Sciences, Javarahalli Rd, Bellur, Nagamangala Taluk, Mandya district, Karnataka, India

Received : 25/08/2022
Received in revised form : 01/10/2022
Accepted : 11/10/2022

Keywords:

Organophosphorous Poisoning, Serum Amylase, Gastric Lavage, Outcome.

Corresponding Author:

Dr. Sohan B,
Email: sohanb123@gmail.com
ORCID: 0000-0003-1323-794X

DOI: 10.47009/jamp.2022.4.5.3

Source of Support: Nil,
Conflict of Interest: None declared

Int J Acad Med Pharm
2022; 4 (5); 9-12



Abstract

Background: Poisoning is a common mode of suicide has been known since antiquity. The choice of agents abused for poisoning depends on the availability, cost, and harmful effects of poison and regional consideration. In general, a majority of those affected by poisoning are young adults in the economically productive age group. Clinical profile of poisoning cases, Correlation of serum amylase with outcome in acute organophosphorous poisoning. **Materials and Methods:** Study design: Prospective Observational Study. Study setting: Medicine ward tertiary care centre. Study duration: 2 years. Study population: The study population included all the cases with poisoning admitted at a tertiary care center. Sample size: 100. **Result:** Majority of study participants belongs to age group 21-40 contributing 52 % followed by 34%, 9 (and 6 (4.58%) in age group 41-60, > 60 and ≤ 20 respectively. majority of study participants are Females contributing 58% and males 42%. gastric lavage was done in 62 and not done in 38 cases. majority of victims of acute poisoning on day 1 presented with vomiting contributing 75 cases followed by pain in abdomen 65, breathlessness 88, altered sensorium 69 and other significant features in 04 cases. majority of participants suicidal poisoning contributed 69 cases followed by homicidal 03 and accidental poisoning 28 cases. majority of cases outcome were Survival 95% and 5 cases Death during treatment. **Conclusion:** Majority of study participants belongs to age group 21-40. Majority of study participants were Females.

INTRODUCTION

Poisoning is a common mode of suicide has been known since antiquity. The choice of agents abused for poisoning depends on the availability, cost, and harmful effects of poison and regional consideration.^[1] In general, a majority of those affected by poisoning are young adults in the economically productive age group.^[2]

The toxicology is defined as science which deals with knowledge of source, character and properties of poisons, their symptoms in the body, their pharmacological actions and treatment.^[3] Poison is a substance (solid, liquid, gas) which if introduced in living body, or brought into contact with any part thereof will produce ill health or death by its constitutional or local effects or both.^[3]

It is difficult to draw a boundary line between medicines and poison because medicine in large doses acts as poison and that a poison in a small dose is a medicine. The only real difference is the intent with which they are purposely and not

accidentally given.^[3] Drug is defined as any substance to be introduced in the human body for diagnosis, investigation, treatment or prevention of any disease.^[3]

According to WHO (1999) more than three million poisoning cases has been reported out of which 2,51,881 deaths occur worldwide annually, Out of which, 99% of fatal poisoning occur in developing countries, predominantly among farmers due to various kinds of poisoning, including poisonous toxins from natural products are handled.^[4]

Poisoning is a major problem globally and its incidence is rising due to rapid industrialization and urbanization. The exact incidence of acute poisoning is not known in India because of lack of any central poison registry.

The toxins involved in acute poisoning cases vary from place to place. In western countries, the commonest toxins are medicinal agents. In contrast, in India, insecticides and pesticides are the most commonly consumed agents in adults while kerosene oil is the most common toxin in children. Pattern of poisoning in any region also depends on

availability of poisons, religious and cultural influences, occupation prevalent in the region and likewise.

The monsoon dependent agricultural practice and socioeconomic factors related to it play role in the incidence of acute poisonings.^[5] Over the last decade or so, the number of cases with drug overdose has increased. Besides these agents, plant poisons constitute a significant proportion of patients reported from the southern part of India. Knowledge of commonly encountered poisons in a particular area is important for medico and legal community.^[5]

In India, a series of case reports and studies have appeared from different northern states.^[6] The poisoning has been steadily increasing and has achieved alarming epidemic proportion.^[7] The poisoning involving primarily the youth is mostly suicidal, occasionally accidental and rarely homicidal.^[8] Recently, cases of poisoning with exposed compounds and its combined toxicity with ethyl alcohol have been reported.^[9,10]

Even though there may be similarities with reference to age and sex patterns in the cases of poisoning as well as in the mode of poisoning, major differences are evident between developed and developing countries with respect to poisoning agent.^[11,12,13]

At this tertiary care centre, the incidence of Death due to Poisoning in 2015, 2016 and 2017 was 12%, 14% and 12% respectively. There are very few studies available to find correlation between clinical features of poisoning victims with outcome. So present study aims to study socio-demographic Profile of poison victims, Common type of poison encountered and correlation between clinical features and outcome among victims of poisoning.

Aim and Objective

Objective

- Clinical profile of poisoning cases.
- Correlation of serum amylase with outcome in acute organophosphorous poisoning

MATERIALS AND METHODS

Study Design: Prospective Study.

Study Setting: Medicine ward tertiary care centre

Study Duration: 2 years

Study Population: The study population included all the cases with poisoning admitted at a tertiary care centre

Inclusion Criteria

- All cases with acute poisoning admitted to medical wards.

Exclusion Criteria

- Age less than 12 years
- Patients with comorbid illnesses
- Patients with envenomation

- Alcohol intoxication
- Who do not give consent for study

Approval for the Study

Written approval from Institutional Ethics committee was obtained beforehand. Written approval of Medicine and Related department was obtained. After obtaining informed verbal consent from all patients with the definitive diagnosis of poisoning admitted to Medicine ward of tertiary care centre such cases were included in the study.

Sample Size

Sampling Technique

Convenient sampling technique used for data collection. All patients admitted in the Medicine department of tertiary care center fromwith poisoning were included in the study.

Methods of Data Collection and Questionnaire

Pre-designed and pretested questionnaire was used to record the necessary information. Questionnaires included general information, such as age, sex, religion, occupation, residential address, and date of admission, Type of poison, place of poison, Medical history- chief complain, past history, general examination, systemic examination

Data on demographic profile of acute poison patient, investigation, personal history, medical past history, treatment modalities, and clinical outcome data collected from patients admitted in medicine ward. All the procedures and investigations conducted under direct guidance and supervision of pg guide. Proforma of acute poisoning notes maintained

Data Entry and Analysis

The data were entered in Microsoft Excel and data analysis was done by using SPSS demo version no 21 for windows. The analysis was performed by using percentages in frequency tables and Correlation of serum amylase with outcome in acute organophosphorous poisoning $p < 0.05$ was considered as level of significance using the Chi-square test.

RESULTS

The present prospective study was done among 100 Acute poisoning cases admitted to tertiary care centre during study period.

[Table 1] shows that majority of study participants belongs to age group 21-40 contributing 52 % followed by 34%, 9 (and 6 (4.58%) in age group 41-60, > 60 and ≤ 20 respectively.

[Table 2] shows that majority of victims of acute poisoning on day 1 presented with vomiting contributing 75 cases followed by pain in abdomen 65, breathlessness 88, altered sensorium 69 and other significant features in 04 cases.

Table 1: Distribution of study subjects as per age (N=100)

Age	Frequency	Percentage
≤ 20	6	6%
21-40	52	52%
41- 60	34	34%
>60	8	8%
Total	100	100

Table 2: Distribution of study participants according to clinical features on day 1 of admission (N=100)

Sign / symptom (Day 1)	Frequency	Percentage
Vomiting	75	75%
Pain in abdomen	65	65
Breathlessness	88	88
Altered sensorium	69	69
Others *	04	100

*Others: Discolouration of urine, Raised temperature, Loss of smell sensations and generalized weakness.

Table 3: Distribution of study participants as per manner of poisoning (N=100)

Manner of Poisoning	Frequency	Percentage
Suicidal	69	69%
Homicidal	3	03%
Accidental	28	28%
Total	100	100

Above table shows that in majority of participants suicidal poisoning contributed 69 cases followed by homicidal 03 and accidental poisoning 28 cases.

Table 4: Distribution of study subjects according to outcome

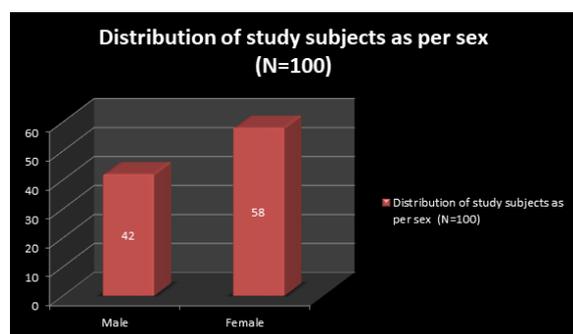
Outcome	Frequency	Percentage
Survival	95	95%
Death	05	05%
Total	100	100

The above table shows majority of cases outcome were Survival 95% and 5 cases Death during treatment.

Table 5: Correlation of serum amylase with outcome in poisoning

Serum amylase	Acute poisoning				Total		P value
	Males		Female		N	%	
	N	%	N	%			
Death	03	60%	2	40%	5	100	0.1383
survival	39	41.05%	56	58.94%	95	100	
Total	42	42%	58	58%	100	100	

Chi-square statistic 0.7, df-1, The result is not significant at $p < .05$.



Above figure shows that majority of study participants are Females contributing 58% and males 42%.

DISCUSSION

This prospective cross-sectional study was done among 100 acute poisoning cases admitted to tertiary care centre during study period.

In this study majority of study participants belongs to age group 21-40 contributing 52 % followed by 34%, 9 (and 6 (4.58%) in age group 41-60, > 60 and ≤ 20 respectively. In a similar study by Indu TH, Raja D, Ponnusankar S (2015),^[14] it was seen that The majority of cases were from 21-30 age group (41.24%).

In present study majority of study participants are Females contributing 58% and males 42%. Contrast result found in a similar study by N Senanayake and H Peiris (1986) Male: female ratio was 3:1. (males 540 (75%), females 178 (25%).^[13]

Distribution of study participants according to clinical features on day 1 of admission was studied and found that the majority of victims of acute poisoning on day 1 presented with vomiting contributing 75 cases followed by pain in abdomen 65, breathlessness 88, altered sensorium 69 and other significant features in 04 cases.

Contrast result found in the study by Liyaqat MS (2019),^[15] revealed that Clinical symptoms such as unconsciousness, stupor (90.47%), vomiting (9.42%), convulsions (66.00%) are froth at mouth and nostrils (62.00%) and the common symptoms whereas constricted pupils (85.71%), pulmonary oedema (88.00%), Tachycardia (76.17%), hypotension (28.57%) are the common signs noted in this series of cases who were treated in the hospital and where the hospital records were available.

Distribution of study subjects according to outcome was studied and found that the majority of cases outcome were Survival 95% and 5 cases Death during treatment.

similar study conducted by Singh B et al (2006)¹⁶ He observed that the 15% death among acute poisoning cases as compared with Singh B et our study participants mortality was low.

Correlation of serum amylase with outcome in poisoning. The result not significant at $p < .05$. similar result found in the study of Singh B et al (2006).^[16]

CONCLUSION

Majority of study participants belongs to age group 21-40. Majority of study participants were Females.

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