



ACUTE POISONING; ETIOLOGICAL AGENTS AND DEMOGRAPHIC CHARACTERISTICS IN PATIENTS COMING TO ER OF A TERTIARY CARE HOSPITAL

Dr. Komal Owais¹, Dr. Ishratullah Khan²

1. Resident , Emergency Medicine,
MD
Zia Uddin University Hospital,
North Nazimabad Campus,
Karachi.

2. Senior Medical Officer,
Zia Uddin University Hospital,
North Nazimabad Campus,
Karachi.

Corresponding author:

Dr. Komal Owais
Resident, Emergency Medicine, MD
Zia Uddin University Hospital,
North Nazimabad Campus,
Karachi.

Article received on:

06/10/2015

Accepted for publication:

04/11/2015

Received after proof reading:

00/00/2015

ABSTRACT: Acute poisoning with various substances is common worldwide. Exposure to agrochemicals, medicines and environmental agents are the major causes of poisoning.¹ It is one of the commonest causes of morbidity and mortality to the patients which has drawn the world attention. **Objectives:** To determine the socio-demographic characteristics and causes and agents of poisoning among patients visiting emergency department with acute poisoning. **Methods:** All the poisoning cases that fulfilled the inclusion criteria and attended the emergency department from February 2014 till March 2015 with acute poisoning were evaluated. A hospital medical record form were used for data collection in which the details of patient's demography, agents of poisoning and intension of poisoning, were entered from hospital records and analyzed. **Results:** A total of 364 patients attended the emergency department of Zia Uddin university hospital over period of 12 months. In this population 36% were male and 64% were females. Commonest age group for poisoning was 15-30 yrs. and commonest agent was organophosphate. Intentional poisoning comprised of 88% while accidental poisoning comprised of 12%. **Conclusion:** On the basis of our study we can conclude that female adolescents and adults are more prone to intentional acute poisoning and pesticides are the commonest agents involved in acute poisoning.

Key words: acute poisoning, agrochemicals, medicines, environmental agents, morbidity, mortality.

Article Citation: Owais K, Khan I. Acute poisoning; etiological agents and demographic characteristics in patients coming to ER of a tertiary care hospital. Professional Med J 2015;22(12):1591-1594. DOI: 10.17957/TPMJ/15.3120

INTRODUCTION

Poisons are substances that cause disturbances to organisms usually by chemical reaction, or other activity on the molecular scale when a sufficient quantity is absorbed by an organism.^{2,3} Acute poisoning is exposure to a poison on one occasion or during a short period of time. Poisoning with various substances is common and a public health threat worldwide. According to WHO it is the 9th leading cause of death in young adults 15 to 29 years old⁴ and up to half a million people die each year as a result of poisoning.⁵ The incidence and characteristics of poisoning vary greatly due to inadequate epidemiological data from the region. Acute poisoning with organophosphorous compounds is one of the common causes of intentional deaths but along with that certain medications like antidepressants, tranquillizers, analgesics when taken in high doses are also used as poisonous agents in the urban areas. To our best knowledge in a

developing country like Pakistan very limited work has been done on the poisoning. The magnitude of the problem as well as significant morbidity and mortality, was made us to conduct the study. The objectives of this study were to determine the common toxic agents involved in poisoning like drugs, agrochemical agents, and environmental agents and understand the epidemiological trends, causes and incidence of acute poisoning

METHODOLOGY

This study was carried out at the department of emergency medicine, Zia Uddin University Hospital, Karachi, Pakistan over a period of 12 months from February 2014 till March 2015. This study was a clinical audit; therefore no ethical approval was required. All patients with age greater than 15 years of either sex, who either intentionally or unintentionally takes any kind of poison, are included in the study. All patients with history of snake bite, dog bite, bee sting

and those with co morbid illnesses like DM, HTN, IHD, COPD, CRF were excluded because the effect of these confounder of the study. A total of 364 patients with symptoms of poisoning were studied which underwent different diagnostics procedures and were categorized into multiple isolated agent.

A Questionnaire was filled using inpatients and outpatients medical records by an independent observer who was not the part of research team and/or inpatient care. Data collection include variable such as age, gender, isolated agent and analysis is performed to measure the frequency of the poison used. All statistical analysis was performed using statistical packages for social science version 19. Frequencies and percentage were computed for qualitative variables and mean \pm standard deviation were estimated for quantitative variables. In order to maintain confidentiality, all the patients' forms will be given separate codes.

RESULTS

A total of 364 cases of poisoning were included in the study. The average age of the patients was 31.67 ± 12.92 . There were 132 (36%) males and 232 (64%) females as shown in figure-1. Out of these 364 patients; 259 took the poison intentionally while remaining took it un-intentionally which make 88% and 12% respectively

Out of these 364 patients; 201 (55%) had no pharmacological agents and there were 163 (45%) patients who were found to be positive with these pharmacological agents. Out of these 163 patients; alcohol was found in 2%, barbiturates in 9%, benzodiazepine in 15%, cannabin ate in 6%, rodenticides in 23%, kerosene Oil in 12% and organophosphate was found in 33% patients.

DISCUSSION

In the developing country like Pakistan acute poisoning remains an important health issue as it is all around the world. Acute poisoning was seen more in females constituting 64% than in males 36% in our study this is nearly same to the studies conducted in Turkey and India^{6,10} and

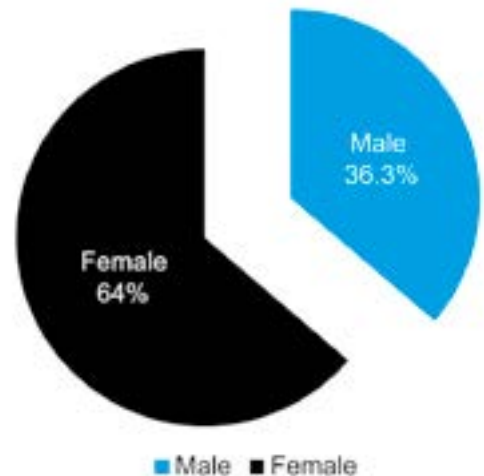


Figure-1. Gender distribution (n=364)

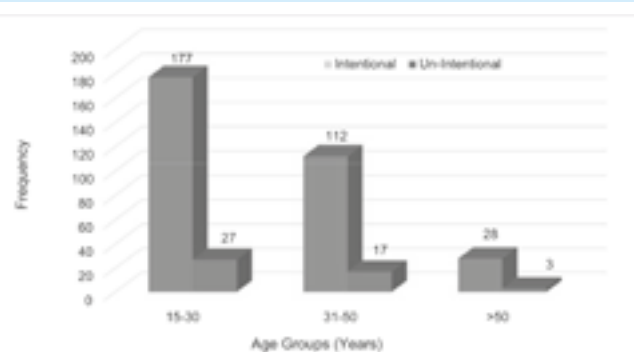


Figure-2. Age Groups of the Poisoning Patients According To Intentional and Unintentional

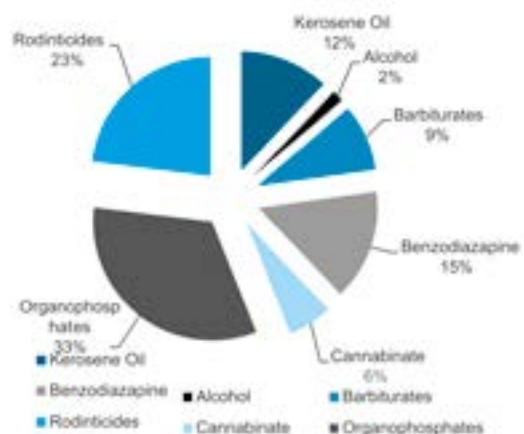


Figure-3. Used of Toxic Agent

Unlike the studies carried out in other countries of the world.^{7,8,9} In our study most common age group for poisoning is from 15-30 years. This is similar to the findings of the other researches from Bangladesh, India and Norway.^{11,12}

In our study the commonest causative agent for acute poisoning was organophosphate. Organophosphate poisoning is a major problem worldwide accounting for millions of deaths every year in developing countries however in certain countries like Russia and, South Africa the dominating agents for the poisoning were drugs.^{15,17} In Saudi Arabia poisoning by pharmaceutical agents were higher in female adults.¹⁶ Basically in our region use of pesticides is poorly regulated and most of the time unsafe, also their easy availability makes these a common agent of acute poisoning in individuals. The government should take steps in making strict terms and conditions on sale of pesticides. The second common agent responsible for acute poisoning was medical drugs. For such agents there should be proper legislation and such substances should not be sold without the prescription of the registered chemist or physician and also large quantities of such drugs should not be sold to the individuals. Rodenticides poisoning was found in 28% of the total population. Kerosene oil was found to be the poisonous agent in 12% of our patients; it was mostly taken unintentionally as it is usually kept in the soft drink bottles which resemble more like water. Cannabinates were found in 6% of the population and alcohol poisoning comprised of 2% of the population.

Accidental poisoning was reported by 12% of the population whereas intentional poisoning comprised of 88% of the study population and was seen in majority of the young adults. This can be explained by the fact that majority of the young people have more economical, professional and social stresses and they have more of family conflicts associated with psychiatric illness.

CONCLUSION

In this study most common etiological agents of poisoning are Organophosphate, Rodenticides, Benzodiazepine and Kerosene Oil. Incidence of acute poisoning is more common in females as compared to male. For awareness educational programs and counseling sessions should be conducted. A specific concern should be raised and strict laws should be made towards

the availability and sale of pesticides and other harmful drugs.

Copyright© 04 Nov, 2015.

REFERENCES

1. Hempstead K. **Manner of death and circumstances in fatal poisoning: Evidence from New Jersey.** *Inj Prev.* 2006; 12:44.
2. "poison" at **Dorland's Medical Dictionary** page no 1480
3. "Poison" at **Merriam-Webster.** Retrieved December 26th, 2014.
4. WHO, "**Poisoning prevention and management,**" 2012, <http://www.who.int/ipcs/poisons/en/>
5. United Nations Environment Programme (UNEP), International Labour Organization (ILO), World Health Organization (WHO). **Guidelines for poison control.** Geneva: WHO press; 1997.
6. Goksu S, Yildirim C, Kocoglu H, Tutak A, and Oner U. **Characteristics of acute adult poisoning in Gaziantep, Turkey.** 2002; 40:833-37.
7. Prasad LS, Krishna BH. **An epidemiological study on acute parathyroid poisoning.** *Nepal Med College J.* 2001; 3(1):36-9.
8. Ghimire RH, Sharma SP, Pandey K.R- **A comparative study of acute poisoning in Nepal at tertiary and secondary level hospitals: J Nepal Med Association.** 2004;43; 130-33.
9. Jesslin J, Adepu R, and S Churi. **Assessment of prevalence and mortality incidences due to poisoning in a south Indian tertiary care teaching hospital.** *Indian J Pharm Sci.* 2010; 72(5):587-91.
10. Prajapati T, Prajapati K, Tandon R, Merchant S. **Acute chemical and pharmaceutical poisoning cases treated in civil hospital, Ahmedabad.** 2013; 2:63-7.
11. Sarkar D, Shaheduzzaman M, Hossain MI, Ahmed M, Mohammad N, Basher A. **Spectrum of acute pharmaceutical and chemical poisoning in Northern Bangladesh.** *Asia Pac J Med Toxicol.* 2013; 2(1):2-5.
12. Hovda KE, Bjornaas MA, Skog K, Opdahl A, Drottning P, Ekeberg O, et al. **Acute poisonings treated in hospitals in Oslo: a one-year prospective study (I): pattern of poisoning.** *Clin Toxicol (Phila).* 2008; 46(1):35-41.
13. Eddleston M, Eyer P and Worek F. **Differences between organophosphorus insecticides in human self-poisoning: a prospective study.** *Lancet.* 2005;

- 366:1452–59.
14. Gunnell D and Eddleston M. **Suicide by intentional ingestion of pesticides: a continuing tragedy indeveloping countries.** Int J Epidemiol. 2003; 32:902–9.
 15. Golenkol A, Nikolave E, Chuvas A. **Poisoning cases as suicide behavior manifestation.** The Middle East J Emerg Med. 2002;2
 16. Elmohdy ZA, Elhaleem A, Mohsen BA, Al Muqhem. **Pattern of acute poisoning in Al Majmaah region, Saudi Arabia.** American J Clin and Experim Medicine. 2014;2(4): 79-85
 17. Malangu N. **Poisoning in children from a rural community in South Africa.** South Afr J Epidemiol Infect.2005; 20(3):97-102.




“Continuous struggle is real joy”

Muhammad Shuja Tahir



AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Dr. Komal Owais	Concept & Design of the study statistics manuscript writing data collection.	
2	Dr. Ishrat Ullah Khan	Data collection, Statistics	