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A Study on Pattern and Treatment of Poisoning In A Teaching Hospital

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ABSTRACT

Back ground: Many studies carried out to determine the effect of Posioning on the success of implantation, poisoning is an important cause of mortality& morbidity rate in India. The objective of the study was to determine the demographic profile and mode of poisoning of patients & determine the exposure and outcome of patients. And also to asses the oxidative damage, hemoglobin levels & leucocyte count in Posioning cases. Methods :It is retrospective type of design. The cholinestrase levels was assessed by the toxicity markers& also oxidative damage was assessed by the estimating the serum aldehyde levels, glutathione peroxidase levels. The significant decline in choline straese correlation with the severity of poisoning was observed. The over all 157 cases of poisoning were reviewed retrospectively in tertiary care hospital. Among them, 153 cases were of intentional poisoning and rest 4 cases were accidental poisoning: The results of the present study suggested that the young age people with the age of 21 to 30 were more prone to suicide, particularly male in this age group. Most of them have used Organo phosphorous pesticides for committing suicide.

Keywords: Medical record room(MRD),Poison, Date of admission(D/A),Date of discharge(D/D).

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INTRODUCTION

A Poison is any material (liquid, solid, gas) that by reason of an intrinsic toxic property has the tendency to be fatal or hinder one's health. Poisoning is a qualitative term used to define the potential of a chemical substance in acting adversely or deleteriously on the body. Toxins are poisons produced by some biological function in nature, and venoms are usually defined as toxins that are injected by a bite or sting to cause their effect, while other poisons are generally defined as substances absorbed through epithelial linings such as the skin or gut. The word toxin is derived from the Greek word toxicon, which refers to poison arrows. The word intoxicated, derived from it, meant being sickened by the said poisoned arrows. A poison - also called a toxin - is a substance which, if taken into the body in sufficient quantity, may cause temporary or permanent damage[1,2]. Poisons can have an extensive array of affects such as: Slight pain and discomfort, Skin irritation, Anaphylaxis, Cardiac arrest,Death etc. Poisons can be acquired through four different means: Ingested (swallowed), Inhaled (through breathing),Absorbed (through skin),Injected (through syringe or bite).Paracelsus, the father of toxicology, once wrote: **"**Everything is poison, there is poison in everything. Only the dose makes a thing not a poison**"** [2,3,4]. Acute poisoning is exposure to a poison on one occasion or during a short period of time. Symptoms develop in close relation to the exposure. In contrast, substances that destroy tissue but do not absorb, such as lye, are classified as corrosives rather than poisons. Furthermore, many common household medications are not labeled with skull and crossbones, although they can cause severe illness or even death. Chronic poisoning is long-term repeated or continuous exposure to a poison where symptoms do not occur immediately or after each exposure. The patient gradually becomes ill, or becomes ill after a long latent period. Chronic poisoning most commonly occurs following exposure to poisons bio accumulate, or biomagnified, such as mercury and lead. The history of poison stretches from before 4500 BC to the present day. Poison was discovered in ancient times, and was used by ancient tribes and civilizations as a hunting tool to quicken and ensure the death of their prey or enemies. This use of poison grew more advanced, and many of these ancient peoples began forging weapons designed specifically for poison enhancement. Later in history, particularly at the time of the Roman Empire, one of the more prevalent uses was assassination. Poisons have been used for many purposes across the span of human existence as weapons, anti venoms and medicines. Indeed, poison has allowed much progress in the branches 0f medicine, toxicology, and technology, among others. In the present day, poison is still used for a variety of mostly mundane purposes of murder[5,6]. Due to

more modern day technology, however, poison can be more easily detected. Over 5 million people are treated in USA every year on exposure to drugs. Only about 5% require hospitalization. Overall mortality rate is low, only 0.03% of all exposures, but 1-3% in suicidal cases. Acute poisoning accounts for 2-3% of all admissions to hospital in India. High incidence in the community reflects cases of availability of insecticides and pesticides and also stress of modern lifestyle. Insecticides, vegetable poisons, aluminum phosphide, alcohol, hypnotics and sedatives are the major poisons en- countered in India. In rural areas, Insecticides, pesticides and vegetable poison, predominate whereas in cities and towns it is sedatives or other drug over dosage. World Health Organization published in 1990, around 3 million poisoning cases with 220,000 deaths occur annually. Recently some review articles reported that the number of intoxications with organophosphate pesticides was 3 million per year, and the number of deaths and casualties are 300,000 per year worldwide. National Poison Prevention Week was established by the U.S. Congress in 1961 and occurs each year during the third week of March[6,7]. The goal of this week is prevention of poisoning and education of the population about the potential dangers of poisoning. The majority of poisoning (37.8%) in India are by those below the age of 30 years. The fact that 71% of poisoning in India are by persons below the age of 44 years imposes a huge social, emotional and economic burden on our society. Poisoning is an important medical emergency. The nature of poison used varies in different parts of the world and may vary even in different parts of the same country depending on the socioeconomic factors and cultural diversity. The most common poisons are: Cosmetics and personal care products cleaning substances pain medicine/fever-reducer and vitamins pesticides and plants diaper care, acne preparations, antiseptics, antimicrobials cough and cold preparations medications like antihistamines, sedatives, hypnotics, antipsychotics etc. Hormones and hormone antagonists (diabetes medications, contraceptives)hydrocarbons (lamp oil, kerosene, gasoline, lighter fluid) ,coins, thermometers bites and envenomation alcohol, food products and food poisoning fumes, gases, vapors, arts, crafts and office supplies stimulants[8].

MATERIALS AND METHOD

It is a retrospective type of study design. The study was conducted at GSL Medical College & General Hospital in Rajahmundry. This study was carried out for a period of 6 months (March2015-October 2015).We are used the Medical Record Department (MRD) for collecting the various data for the source of project. Data entry form of preforma contains details about

age, gender, Date of admission, Date of Discharge. Date of death, type and name of the poison, treatment given, social history, past medical history**,** Enclosed in the appendix.

Data collection:

The following are the details collected from medical records are,

- Demographic details of patients.
- Mode of poisoning of patients.
- Exposure and outcome of patients.

Study criteria:

Inclusion criteria:

- All age groups (above 15yrs) are included in this criteria.
- All types of Intentional and unintentional Poisoning.

Study procedure:

Poisoning cases are collected from MRD. The data collected regarding the patients, those who had undergone exposure to poison either by household or agricultural pesticides, industrial toxins, toxic plants, drug or miscellaneous products. Cases of snake bite were also included in this study. The study included cases and data regarding age, sex, circumstances of poisoning, name of the poisonous substance, and outcome were collected from January 2010 to April 2016.

RESULTS AND DISCUSSION

In the present study, 157 cases of poisoning were reviewed retrospectively in tertiary care hospital. Among them, 153 cases were of intentional poisoning and rest 4 cases where accidental poisoning. In all the 157 cases the male exposure was 105 and females were 52, among these fatal cases were 4, this mainly shows that males are more prone to poisoning than females. The occurrence of poisoning decreases with increasing age and the majority of cases were in the age group of 21-30 years.

Gender analysis of poisoning cases:

Table 1: Gender Analysis

Male	Female
105(66.87%)	52(33.12%)

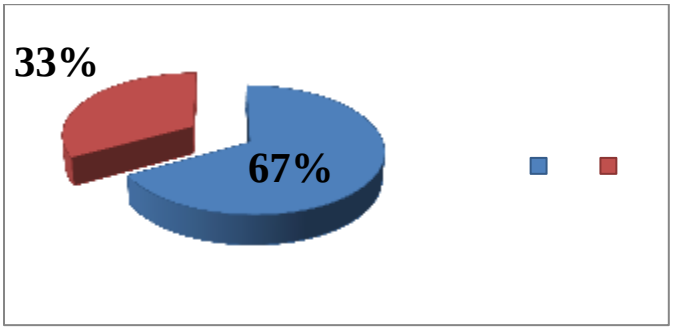

Figure 1: Gender Analysis

Out of 157 cases, according to gender analysis 105 were male cases and 52 were female cases.

Age group distribution:

Table 2: Age Group Distribution

Age	Male	Female	Total cases
15-20	17(10.82%)	13(8.28%)	30(19.10%)
21-30	44(28.02%)	24(15.28%)	68(43.31%)
31-40	21(13.37%)	6(3.82%)	27(17.19%)
41-50	12(7.64%)	6(3.82%)	18(11.46%)
51-60	6(3.82%)	2(1.27%)	8(5.09%)
61-73	5(3.18%)	1(0.63%)	6(3.821%)

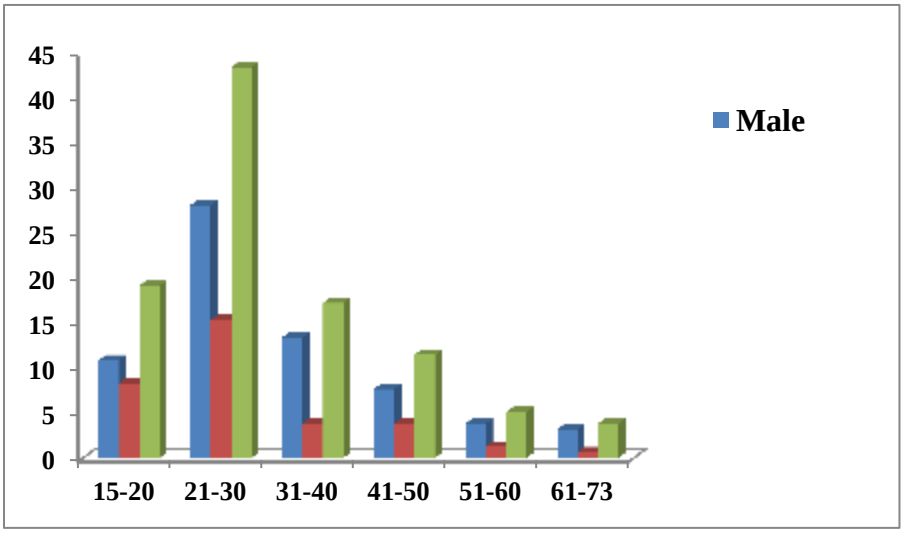

Figure 2: Age Group Distribution

According to age group analysis, in the age group of 15-20 total cases were 30 in which 17 male and 13 female cases are noticed. In 21-30 age groups 44 male cases and 24 female cases were recorded, out of 68 cases. In 31-40 age groups21 male cases and 6 female cases were noticed, out of 27 cases. In 41-50 age groups 12 male cases and 6 female cases were recorded, out of 18 cases. In 51-60 age groups 6 male cases and 2 female cases were noticed, out of 8 cases. Finally we collected upto the age group of 73 in that 5 male cases and 1 female case was to be noticed.

Analysis of Various Poisonings:

Table 3: Analysis of Various Poisonings

Type of poison	No. of cases
Organ phosphorous poisoning (endosulfan)	69(43.94%)
Chemicals (acids, rat killers	18(11.46%)
Drugs (alprazolam, amitryptilline, imipramine	19(12.10%)
Unknown	7(4.45%)
Hanging with alcohol	7(4.45%)
Snake bite	37(23.56%)

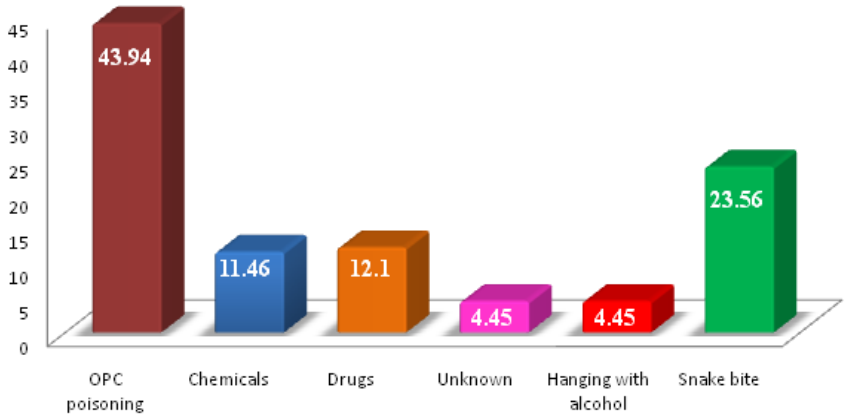

Figure 3: Analysis of Various Poisonings

Out of all poisoning cases in which the type of poisoning we identified are Organo phosphorous poisoning cases were 49 in which we found mainly endosulfan, chlorpyrphos, cypermethine. Chemicals like acids, rat killers total cases were 18 and unknown cases were 7 were identified. Drugs such as alprazolam, amitryptilline, imipramine etc., were identified in 19 cases. Hanging with alcohol cases were 7 cases and snake bite poisoning that may consider as accidental poisoning were found to be 37.We conclude that Organo phosphorous poisoning cases were very high.

Various reasons of poisoning:

Table: 4 Various Reasons of Poisoning

Reasons of poisoning	No. of cases
Family stress	31(19.74%)
Financial problems	23(14.64%)
Love failure	14(8.91%)
Depression	11(7%)
False relation	7(4.45%)
Attitude seeking behavior	4(2.54%)
Marital problems	3(1.91%)
Job stress	7(4.45%)

Accidental exposure	4(2.54%)
Impulsive situation	7(4.45%)
Alcoholic spouses (married one)	1(0.63%)
Stress in schools/studies	5(3.18%)
Treat by other environmental stress	3(1.91%)

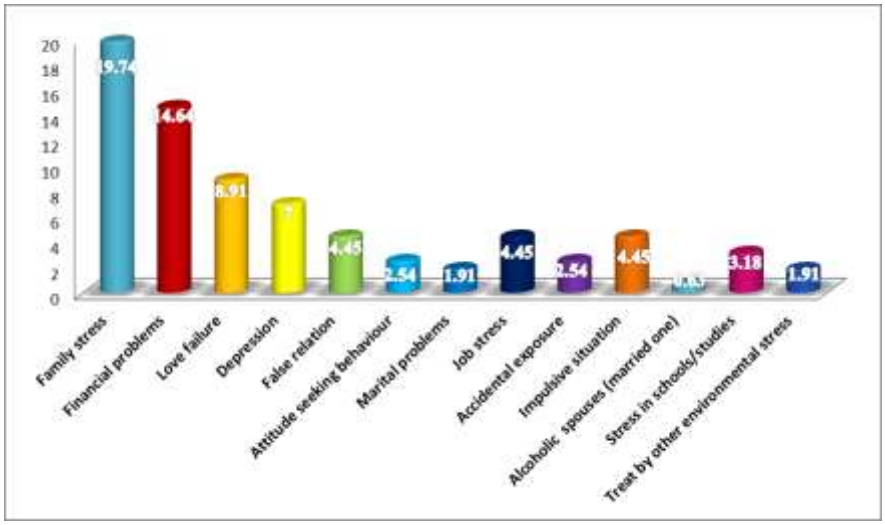

Figure 4: Various Reasons of Poisoning

Among all these poisoning cases, most of the reasoning of poisoning are family stress are identified as 31 cases and financial problems were 23 cases found.14 and 11 cases were due to love failure and depression respectively mainly due to family stress and financial problem. Remaining cases were Attitude seeking behavior, marital problems, Job stress, and Accidental exposure; Treat by other environmental stress etc

Recovered and fatal cases:

Table: 5 Recovered and Fatal Cases

No. of patient recovered	No. of fatal cases
153 (97.45%)	4 (2.54%)

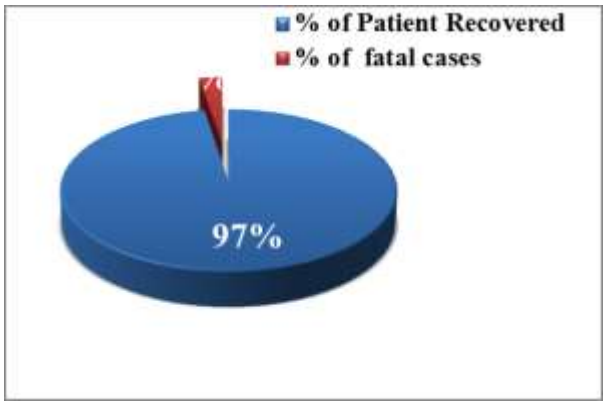

Figure 5: Recovered and Fatal Cases

The fatal cases were 4 in which two cases were organo phosphorous poisoning, one case was unknown poisoning and remaining one case was chemical poisoning.

Marital Status of Poisoning Cases:

Table: 6 Marital Status of Poisoning Cases

Marital status	No. of cases
Married	103(65.60%)
Single	49(31.21%)
Widow	5(3.18%)

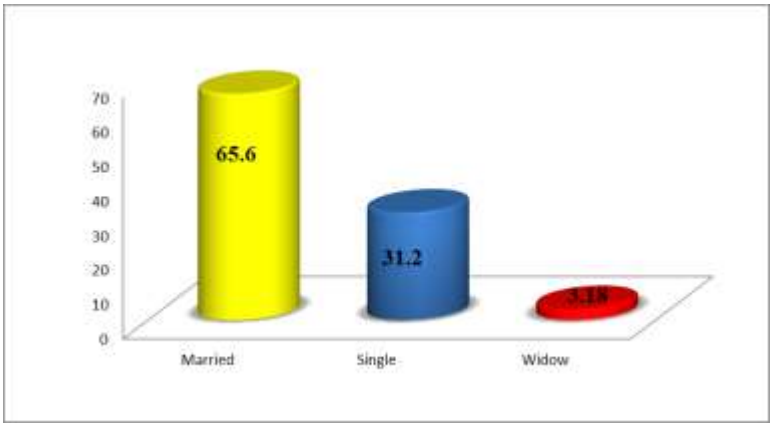

Figure 6: Marital Status of Poisoning Cases

According to the marital status of all the poisoning cases found that married one's were 103 cases, single were 49 and finally widow was 5 identified.

CONCLUSION:

It was observed that the young age people with the age of 21 to 30 were more prone to suicide, particularly male in this age group. Most of them have used Organo phosphorous pesticides for committing suicide. The major reason for poisoning was family stress followed by financial problems. Most of the patients were married. Based on the occupation farms has poisoned themselves more compared to other occupation which is followed by the housewife. Many patients were not given any specific antidotes but the number of fatalcases was very minimal, most of the patients were recovered from the poisoning. It is essential to strengthen the legistrature on the availability of the Organo phosphorous compounds and it is also more essential to strengthen the preventive measures like educating people through drug awareness programmes, promoting poison information centres, introducing separate toxicological units in hospitals and upgrading the peripheral health centres to manage the cases of Organo phosphorous poisoning in an emergency. So, to conclude, it is important to design an appropriate

health education programme for the prevention of both suicidal and accidental Organo phosphorous poisoning for the benefit of the public at large.

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