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Research Article

FREQUENCY OF ACUTE POISONING PATIENTS PRESENTING IN HOLY FAMILY HOSPITAL MEDICAL EMERGENCY

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Abstract:

Introduction: Globally, poisoning and over dosage of drugs including both intentionally or unintentionally, are accounted as a major dilemma of high mortality rate.

Aims & Objective: To evaluate poisoning cases, specifically in relation to the frequency of poisoning, demographics, nature of agents used in patients presenting in a tertiary care hospital in Pakistan.

Study Design: Retrospective

Place and duration of study: Holy Family Hospital, from 1st June to 31st July 2020

Methodology: A total sample size of 116 was achieved. All patients were between 18 and 62 years visiting the hospital which were brought to the emergency of Holy Family Hospital either directly or referred from various hospitals. Statistical tools used was SPSS Version 21.

Results: Out of total 116 cases of poisoning, highest cases were of Organophosphate poisoning (53%), followed by Wheat pill ingestion (29%), Paracetamol overdose (16%) and Benzodiazepine ingestion (2%). Highest cases were found in females (61%), followed by males (39%). The greatest number of cases were found in 15-25 age group (62%), followed by 26-35 age group (24%), 36-45 age group (12%) where as 56-65 years age group shows the least poisoning intake (2%). A comparatively greater poisoning cases were observed in rural areas (63%), relative to urban population (37%). A comparatively greater poisoning cases were observed in rural areas (63%), relative to urban population (37%)

Conclusion: With increasing number of suicidal cases reported each year, it's high time that certain regulations should be introduced by the government. Strict control should be implemented to prevent misuse of these products. Furthermore, as the age-group involved is 15-25 years, proper guidance should be provided to cope up with the anxiety and frustration associated with this age group. Conferences, webinars, and classes should be organized to raise awareness about mental illnesses.

Keywords: Poisoning, Suicide, Organophosphates, Benzodiazepenes, Paracetamol, Wheat Pill.

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INTRODUCTION:

Globally, poisoning and over dosage of drugs including both intentionally or unintentionally, are accounted as a major dilemma of high mortality rate [1]. According to World Health Organization (WHO), about 3 million poison toxicity cases with 2.5 lac mortality rate have been observed annually, and about 99% of these cases were observed in agricultural communities of third world nations. In Pakistan due to an intense consumption of agrochemicals in rural areas, they profoundly contribute to both types of poisoning (intentional and unintentional), while in cities the over dosage of pharmaceutical products promotes deliberate and accidental poisoning [2]. Several analyses disclosed that domestic conflicts, marital issues, relationship problems, psychiatric diseases and joblessness promote Deliberate Self -Harm (DSH) among people of Pakistan [3].

There are about 1000 deaths per annum in the UK from accidental poisoning, predominantly occurring in adults with 50% of cases are attributed to opioid poisoning [4]. ED attendances in the UK after intentional self poisoning (347 per 100 000) are increasing and result in more than 2000 deaths per annum, however only 29% of all intentional self poisoning deaths occur in hospital [5]. Poisoned patients account for 10% of admissions to general medical wards [6].

Organophosphorus poisoning occurs very commonly in southern part of Punjab where farmers form a significant proportion of the population who commonly use organophosphorus compounds like parathion as insecticides. Thus, due to the easy accessibility of these compounds, a large number of suicidal cases are encountered in this region [7].

The objective of this study was to evaluate poisoning cases, specifically in relation to the frequency of poisoning, demographics, nature of agents used in

patients presenting in a tertiary care hospital in Pakistan.

MATERIAL & METHODS:

This observational, retrospective study was carried out in the Department of Medicine, Holy Family Hospital affiliated with Rawalpindi Medical University, Pakistan. The data was collected from 1st June to 31st July 2020. A total sample size of 116 was achieved.

This institute is situated in the heart of Rawalpindi. The city is adjacent to Pakistan's capital of Islamabad, and the two are jointly known as the "twin cities" on account of strong social and economic links between the cities.[8] It has a population of 2,098,231 having an area of 259 km [9]. The Rawalpindi district is divided into seven tehsils, these are Gujar Khan, Kahuta, Kallar Syedan, Kotli Sattian, Murree, Rawalpindi and Taxila covering a total area of 5,286 km² and having a population of 4,500,000.

All patients were between 18 and 62 years visiting the hospital which were brought to the emergency of Holy Family Hospital either directly or referred from various hospitals. These patients mainly belonged to the seven tehsils that come under the Rawalpindi District. Poisoning patients admitted to the hospital during the duration were included in the study. All patients were subjected to detailed history regarding demographic data (age, sex and region), aetiological agents (like, organophosphorus and drugs etc), time of poison ingestion, time of arrival at hospital and hospital outcome. Complete general physical examination and thorough systemic examination was performed in all cases. Investigations like complete blood count, X-Ray chest, blood glucose, blood urea and creatinine, arterial blood gases and toxicological screening of were carried out, where needed. Specific management measures like decontamination, antidote, alkalization or diuresis were taken accordingly. Outcome was measured in term of

complete recovery and expiry. Informed consent was taken from patient's relatives and advantages/risks in study and significance of the study were explained to the parents/relatives.

The database processing and analyses was performed by the Statistical Package for the Social Sciences (SPSS) - version 21. Ethics approval for the collection of data included in this study was granted

by the Ethics Committees of the Department of Medicine, Holy Family Hospital, Rawalpindi.

RESULTS:

Out of total 116 cases of poisoning, highest cases were of Organophosphate poisoning (53%), followed by Wheat pill ingestion (29%), Paracetamol overdose (16%) and Benzodiazepine ingestion (2%). (Fig no.1)

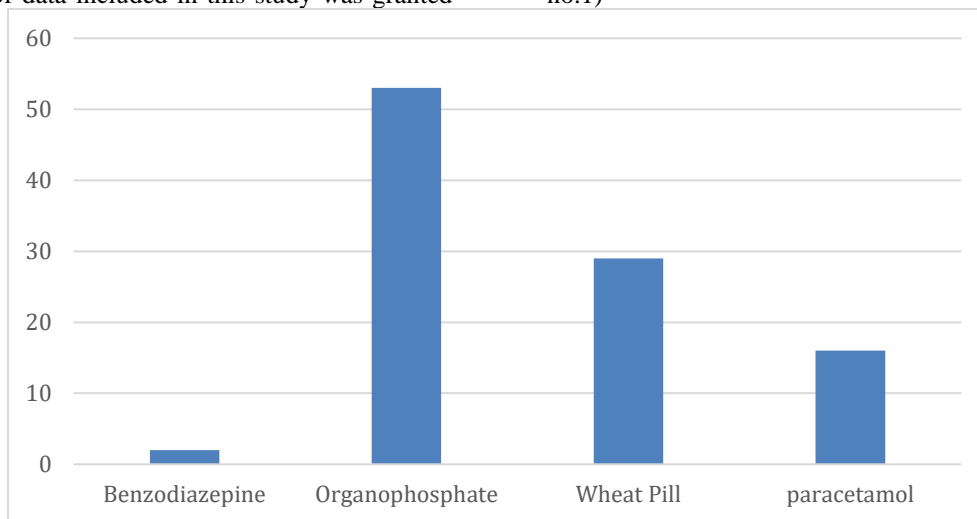


Fig. No 1: Percentage of poisoning cases presented to Emergency Department.

Highest cases were found in females (61%), followed by males (39%). (Fig No.2)

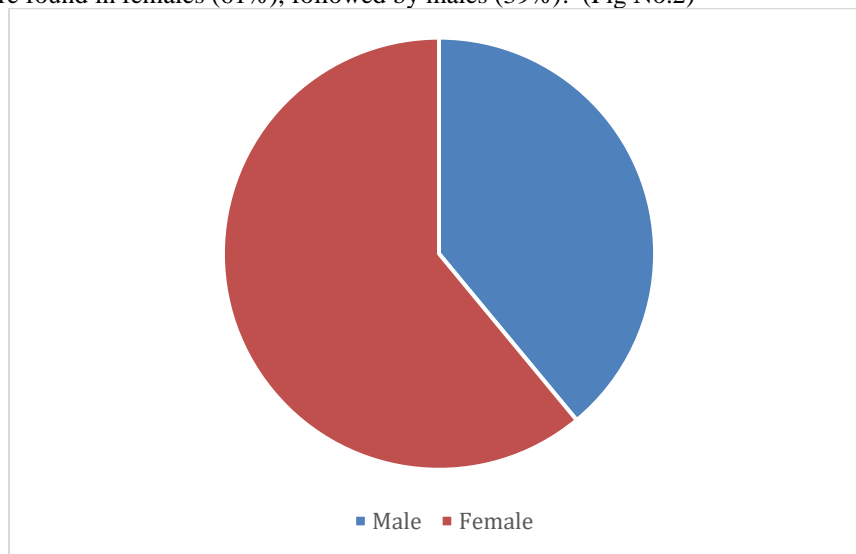


Fig no.2: Frequency of gender related poisoning cases

The greatest number of cases were found in 15-25 age group (62%), followed by 26-35 age group (24%), 36-45 age group (12%) where as 56-65 years age group shows the least poisoning intake (2%). (Fig No.3)

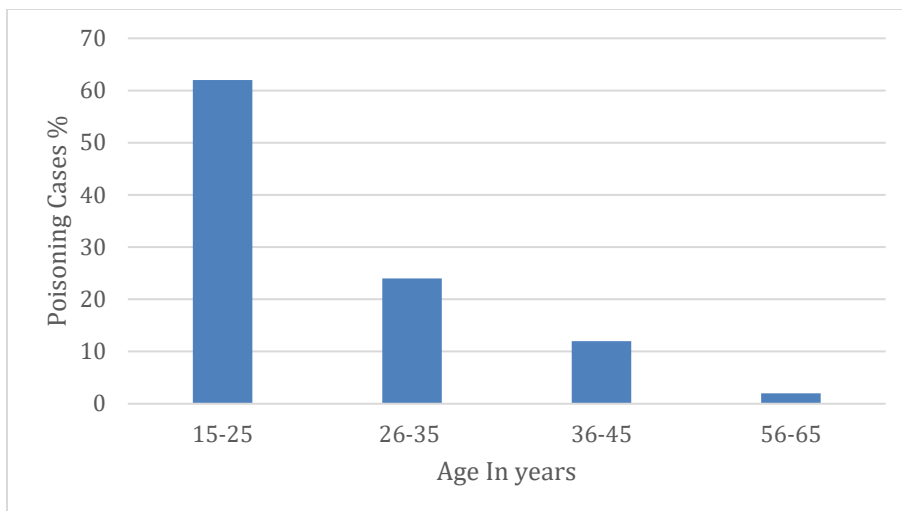


Fig no. 3: Age group with respect to poisoning cases in percentage.

A comparatively greater poisoning cases were observed in rural areas (63%), relative to urban population (37%) (Fig No.4)

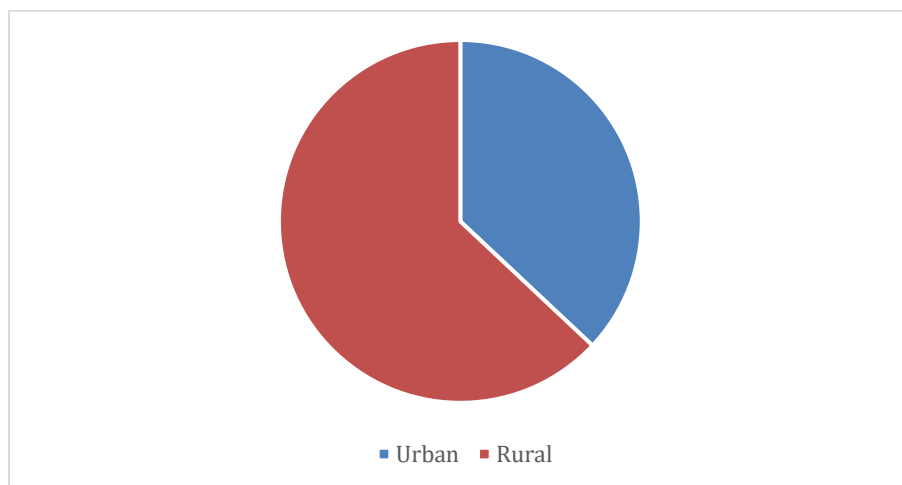


Fig no.4: Frequency of poisoning cases

DISCUSSION:

Committing suicidal attempts is one of the worst scenarios in any country. Ingestion of poisoning substances is one of the oldest methods.

This study reveals that the pattern of acute self-poisoning in female patients was 61% and 39% in male patients. A study done 10 years back in the same institution shows that poisoning cases reported higher in females 60.7% [10].

In contrast to a study done in Mangalore India 2008 where poisoning was more in males as compared to females (male: female 2.8:1) [7]. Similar results were found in a study done in 2005[11]. A female preponderance was also reported by Vivekanandan et al that the reason females attempt suicide at a higher rate than males may be due cultural practices towards

them; most young females are more critically followed and closely controlled by their family when we compare with males. Therefore, females are more likely to hide certain behaviors, such as intimate relationships with the opposite sex to avoid conflict or disapproval. However, when these behaviors are found out, it may cause more family and personal conflict leading to a suicide attempt with different poisons or drugs. This may also explain that the most common reason given for intentional poisoning was family conflict. This finding was reflected in other studies [12].

There are reports available from different parts of the world highlighting various substances abused for acute poisoning and their toxicity. From Western countries, drugs (sedatives and analgesics) have been

reported as the most common substances abused, with mortality rates varying between 0.4% and 2.0%. [13–15] Reports available from certain Asian (Pakistan and Sri Lanka) and African countries (Uganda) describe organophosphates (crop sprays) and drugs as the commonly abused toxic substances, with reported mortality rates varying from 2.0% to 2.1%. [16–18] The mortality/morbidity in any case of

acute poisoning depends on a number of factors such as nature of poison, dose consumed, level of available medical facilities and the time of interval between intake of poison and arrival at hospital, etc.

Our study revealed that the majority of the cases were found in 15-25 age group (62%), in comparable to Peiris-John *et al* study a higher rate of intentional poisoning deemed in 2013, within women aged 10–30 years, is a pattern observed in many low and middle-income countries including New Zealand and other countries [19]. Cheung *et al.* 2005 reported that Studies from both developed and developing countries demonstrate young people, particularly women, below 30 years are over represented in self-harm admission [20]. Sharma *et al* reported in 2010 that overall, these groups are emotionally labile and they are not mature enough to tolerate extreme mental or physical pressure [21]. A study done at National Poison Control Center Karachi concluded that the age group most affected is between 15-20 years having almost equal gender distribution and constitutes 44.77% [22].

Our study showed that the highest cases were of Organophosphate poisoning (53%). In developed countries analgesics, tranquilizers, and antidepressants are common types of poisoning [23]. Studies from our neighborhood countries India, China, and Srilanka have shown that organophosphate pesticides poisoning is widespread [10,24-27].

Benzodiazepine ingestion was (2%) in our study. Studies report that over-the-counter availability of benzodiazepines and NSAIDs/analgesics is responsible for accidental intake and poisoning noted in our study. Similarly, organophosphate poisoning is also common in Pakistan as these are freely available because of agriculture based economy and lack of effective regulatory measures [28-29].

In Western countries poisoning related mortality is low, about 0.5% [26,30,31].

Overall fatality in Asian acute poisoning patients is more than 10%. Mortality in our study was comparatively less (6.89%) and relates with Pakistani studies [32-34].

It is also suggested that in developing countries the social and economic stressors are more significant risk factors or stressors for suicide as compared to mental illness. Unemployment and financial constraints are also describe as the cause of suicide in various studies, where suicide victims are described as low-income earner or belonged to low socio-economic class of society [35].

Greater poisoning cases were observed in rural areas in our study (63%), relative to urban population (37%). A study showed that Children belonging to urban areas were more exposed (85%) compared to those in rural areas (15%) this could be due to the advent of careers for mothers due to inflation leading to neglect of child [36]. Similarly, a study done in Ireland showed that the rate of unintentional injury mortality was significantly higher in rural residents for all-cause unintentional injury mortality [37].

Finally, this study fulfills the objective set by the study protocol for this project of assessing the various agents of poisoning and demographic distribution of patients brought to the medical emergency of Holy Family Hospital with a known history of accidental poison intake and to examine the factors associated with it. This study highlights the high prevalence of accidental household poisoning in the Pakistani population of Asian origin. However there remain certain limitations due to the retrospective nature of the study, moreover due to the small sample size and since Holy Family Hospital receives patients from other cities and rural areas, mainly of low-income group this may not represent the true statistics of the area of our study as well as cannot be generalized for the whole population. A large scale prospective multi-center study shall be done to evaluate the ethnicity, geographic differences and other risk factors for accidental household poisoning in Pakistan.

CONCLUSION:

The constant rise in suicidal poisoning necessitates government legislation and regulations for purchase and use of potentially harmful substances. Furthermore, awareness among youth regarding mental illness and mental disorders is also warranted.

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