Original Article

Pattern of acute poisoning in Jimma University Specialized Hospital, South West Ethiopia

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BACKGROUND: Poisoning is a common cause of morbidity and mortality worldwide. People can be exposed to poisons either intentionally or accidentally. Designing appropriate treatment or prevention approaches depends on understanding of the nature and pattern of poisoning in a specific place. Information on the patterns of acute poisoning in Ethiopian hospitals is limited. This study was, therefore, conducted to evaluate the patterns of acute poisoning in Jimma University Specialized Hospital (JUSH), South West Ethiopia.

METHODS: A record based retrospective analysis of acute poisoning cases presented to JUSH from January 1, 2012 to December 31, 2013 was conducted. The collected data was analyzed using SPSS version 16.

RESULTS: Of the 103 patients, 49 (47.6%) were male and 54 (52.4%) were female. The highest prevalence of poisoning was observed in persons aged 12–20 years (70, 67.96%). Majority of the cases were intentional poisoning (52, 50.5%), and 28 (27.2%) of the cases were accidental. The common causes of poisoning were house hold cleansing agents (43, 41.7%), organophosphates (28, 27.2%) and drugs (13, 12.6%). Diarrhea and vomiting (49.5%), altered consciousness (16.5%) and epigastric pain (13.6%) were the common presenting symptoms.

CONCLUSION: Majority of the victims of the acute poisoning in this study were aged 12–20 years. The most common mode of poisoning was intentional poisoning resulting from temporary quarrel. The common poisons used by the victims were found to be household cleansing agents.

KEY WORDS: Poisoning; Mode; Reasons

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INTRODUCTION

Poisoning either accidental or intentional is a significant global public health problem. According to WHO estimates, in 2004 there were 346 000 deaths worldwide from unintentional poisoning. Of these deaths, 91% occurred in low- and middle-income countries. In the same year, unintentional poisoning caused the loss of over 7.4 million years of healthy life (disability adjusted life years, DALYs).[1] Poisoning is one of the major causes of patient admissions to emergency departments and intensive care units, especially in developing countries.[2]

The prevalence and types of poisoning vary considerably across the world and depend on socioeconomic status and cultural practices, as well as on local industrial and agricultural activities.[3] Advances in technology and social development have resulted in the availability of most drugs and chemical substances in the community.[4,5]

Household chemical agents and prescribed drugs are the most common poisoning agents in developed world, but agro-chemicals are the most common poisoning agents in developing countries.[6] The pesticides used for agricultural purposes are easily available in the market and poisoning with such products are more commonly noticed in rural area where people largely depend on agriculture for their living.[7] Despite the rapidly growing role of chemicals in their economies, many African

countries like Ethiopia lack poison centres, toxicological expertise among health professionals and laboratory analytical facilities which may increase the likeliwood of adverse health impacts.[8]

Continuous surveillance of cases of acute poisoning is important for planning and evaluating public health interventions.[9] It is important to know the nature and severity of poisoning in order to take appropriate preventive measures. There has been no study of this nature conducted at Jimma University Specialized Hospital (JUSH) to date, hence this study was carried out with the objectives to assess patterns of acute poisonings along with various parameters such as poisoning mode, type of poison used, and outcomes of acute poisoning cases presented to JUSH over a period of one year.

METHODS

Retrospective analysis of poisoning case records was conducted among attendants of JUSH from January 1, 2012 to December 31, 2013. JUSH is one of the few teaching hospitals in the country, and the only referral hospital in the south west part of Ethiopia. It is located in Jimma town, Oromia region, 346 km from the capital city, Addis Abeba. It has four major clinical departments (Internal medicine, surgery, pediatrics and OB/GYN) and four minor departments (psychiatry, ophthalmology, dermatology, and dentistry) along with other follow up and special clinics for specific diseases.

All patients seen at medical and pediatric OPD and patients admitted to the medical and pediatrics ward with case of acute poisoning from January 1, 2012 to December 31, 2013 were included in the study.

Data was collected using a structured format, from the patient cards by the principal investigator. The collected data was summarized and analyzed using SPSS version 16.0.

Ethical consideration

Formal letter written by pharmacy department, Jimma University was sent to the hospital's documentation department. The objective of the study was briefed to the staff of documentation department. Documents were kept confidential.

RESULTS

During the specified study period, there were a total of 110 patients with acute poisoning cases seen at JUSH. However, only the 103 patient cards with adequate information were included in this study.

Table 1 showed out of the total 103 patients, 49 (47.6%) were males and 54 (52.4%) were females. The highest prevalence of poisoning was in persons aged 12–20 years (70, 67.96%), followed by ages less than 12 years (15.5%). Majority of the victims were Muslims (49, 47.6%) followed by Orthodox Christians (37, 35.9%).

Majority of the cases were intentional poisoning (52, 50.5%), 28 (27.2%) were accidental, and in the rest of the cases, circumstances of poisoning was not specified (23, 22.3%). Intentional poisoning was signifantly associated (P<0.05) with the age (P=0.0002) and the marital status of the victims (P<0.0001).

The most common involved toxic agents were house hold cleansing agents (43, 41.7%), organophosphates (28, 27.2%) and drugs (phenobarbitone and antidepressants) (13, 12.6%), alcohol (9, 8.7%), and hydrocarbons (benzene, kerosene) (6, 5.8%) (Figure 1).

Among 54 patients who reported their reason for poisoning, quarrel (family, marital) (41, 75.9%), psychiatric problem (8, 14.8%) and substance abuse (5, 9.3%) were frequently cited.

Most of the patients were presented to the hospital between 30 minutes and 1 hour after exposure (54, 52.4%), and only 9 (8.7%) arrived within 30 minutes. The rest arrived between 1 hour and 24 hours (40, 38.8%).

Table 1. Socio-demographic characteristics of the patients

Variables	Frequency	Percentage
Age (in years)		
<12	16	15.5
12–20	70	67.9
21–30	8	7.8
31–40	5	4.9
>40	4	3.9
Sex		
Male	49	47.6
Female	54	52.4
Marital status		
Single	19	18.45
Married	45	43.7
Divorced	27	26.2
Widowed	12	11.7
Level of education		
Illiterate	61	59.2
Primary school education	22	21.4
Secondary school education	17	16.5
Higher institute education	3	2.9
Religion		
Muslim	49	47.6
Orthodox	37	35.9
Protestants	11	10.7
Others	6	5.8

Almost in all cases of poisoning the route of exposure was through oral ingestion accounting for 97.1% (100), and the rest was through inhalation (3, 2.9%).

Diarrhea and vomiting, altered consciousness, and epigastric pain were the most common presenting symptoms accounting for 49.5% (51), 16.5% (17), and 13.6% (14) respectively (Figure 2).

GI decontamination and specific antidotes were given in 81 (78.6%) and 13 (12.6%) of the patients respectively. The rest of the victims obtained other managements (9, 8.7%). Most of the cases were improved and discharged (63, 61.2%). The case fatality rate was 5.8% (6). Psychiatric referral and specific education on further prevention was given in 8.7% and 40.8% of the cases respectively during discharge.

DISCUSSION

The majority of the poisoning victims were in ages between 12 and 20 years (70, 67.96%), followed by ages less than 12 years accounting for 15.5%. This indicates that poisoning was most prevalent in adults which was largely intentional and in children who were accidentally exposed to toxic agents. This finding is consistent with a study in Turkey where many patients were between the ages of 16 and 25 years (46.9%).[10] With regard to sex distribution, poisoning was found to be slightly higher in females than in males, with 1.10:1 female to male ratio which is comparable to the findings of other studies.[11,12]

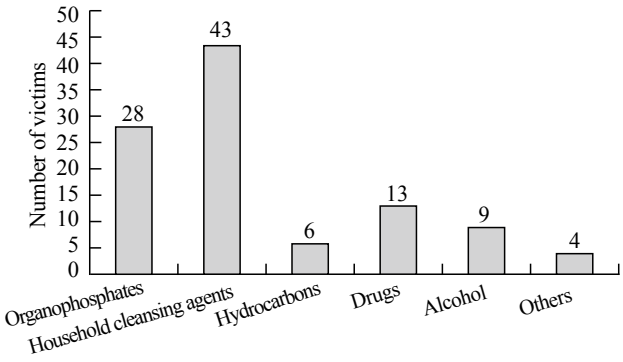

Figure 1. Types of poisoning substances involved in the poisoning cases.

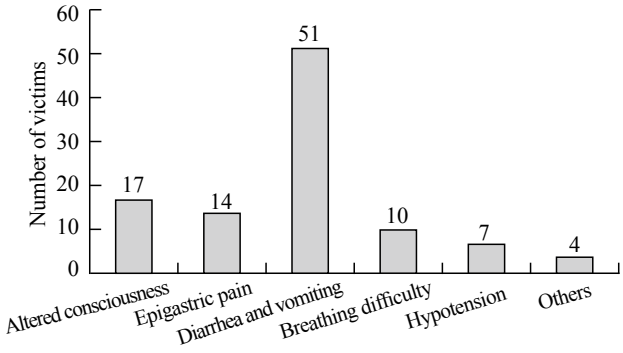

Figure 2. Clinical presentations of the acute poisoning cases.

The toxic agents causing poisoning in this study were similar to other local study done at Tikur Anbessa Specialized Teaching Hospital (TASTH),[11] the most common cause of poisoning being household cleansing agents and organophosphates. A study in South Africa similarly reported household chemicals as the leading poisoning agents (45.7%).[13]

Poisoning can occur either accidentally or intentionally. Intentional poisoning was the most common mode of poisoning (50.5%) in this study, which is in agreement with the findings of other studies done in Nepal (56.4%) [5] and TASTH, Ethiopia (96.5%),[11] Ondokuz Mayis University Hospital (68.6%),[10] Rift Valley Provincial General Hospital, Nakuru, Kenya (48.96%),[14] tertiary care hospital, Salem, Tamilnadu (98.66%).[15] People may intentionally poison themselves because of various reasons. Temporary quarrel with a family member or a spouse was the most common (41, 75.9%) underlying cause of the intentional poisonings in the present study. Similar result have been reported in another local study.[11]

Diarrhea and vomiting was the major presenting symptom (49.5%) followed by altered consciousnes (16.5%) and epigastric pain (13.6%). GI decontamination (78.6%) was the most common management approach employed for the victims in this study. This can be explained by the fact that majority of the patients presented before or exactly one hour post-poisoning, and is consistent with another local study report.[16]

As per this study, most of the cases were improved and discharged (63, 61.2%). The case fatality rate was 5.8%. This finding is comparable to the reported mortality rates in some other local studies.[11,16] Oral injestion was the most common route of exposure (100, 97.1%), which is consistent with the result reported in other studies.[6,17]

In conclusion, the present study showed that the most affected age group was 12–20 years. The common agents involved in causing poisoning were found to be household cleansing agents. The most common mode of poisoning was intentional resulting from temporary quarrel.

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Conflicts of interest: The authors declare there is no competing interest related to the study, authors, other individuals or organizations.
Contributors: Teklemariam E proposed the study and wrote the first draft. All authors read and approved the final version of the paper.

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