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Investigation of acute intoxication cases followed-up in the intensive care unit: A retrospective study

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Abstract

Objective: Intoxication cases are increasing in societies day by day. Intoxication cases are followed-up and treated in Intensive Care Units (ICU). In our study, the intoxication cases followed in the intensive care unit; it is aimed to evaluate demographic data, prognosis, causing agents, mortality rates retrospectively.

Material and Methods: In the intensive care unit between the dates of January 1, 2016 and March 10, 2020, the patients who were admitted with the diagnosis of acute intoxication, age, gender, the drug is taken for poisoning or the substance they are exposed to, Glasgow Coma Scale (GCS), the number of days hospitalized, mechanical ventilation support day and the number and mortality status were evaluated retrospectively.

Results: The 88 patient applied to ICU with the diagnosis of acute intoxication, 55(62%) of them are female and 33(37%) of them are male. According to all gender data, the intoxication was found to be the highest between the ages of 17 and 30 (n: 69) and the least under 17 age (n: 2). Half of the patients (n: 44 50%) were treated in less than 2 days. With a single drug, intoxication was seen as the highest with antidepressants.

Conclusion: Intoxications occur mostly with medications and among these drugs, they are mostly seen with antidepressive medications for psychiatric treatment. When treatment is started quickly after the poisoning, the duration of hospital stay is shortened and the prognosis is better. Since poisoning varieties differ by region, this information should be known and updated by the people who treat it.

Keywords: Intoxication, Intensive Care Unit, Poisoning

Introduction

Poisoning is called damage to the organism by removing substances that disrupt vital functions and threatening life through breathing, circulation, mouth, skin and similar ways (1). The poison by the famous chemist Philippus Aureolus Theophrastus Bombastus von Hohenheim said: “Every substance is poison, no non-poisonous substance; It is the dose that separates the drug with poison”(2). Nowadays, poisonings are seen with suicidal or accidental medications, inhalation of delightful substances and dangerous gases, people in the field taking pesticides or taking household cleaning products (3). Intoxication cases usually enter the emergency department, and then follow-up and treatment in intensive care units (ICU). Cases of poisoning; varies according to gender, age, lifestyle, culture and climate. Therefore, it is important to consider the regions where these people live while diagnosing and treating poisoning cases. In our study, we retrospectively analyzed the cases accepted to our intensive care unit with the diagnosis of poisoning.

Material and Methods

In the study, after the approval of the Ethics Committee (76244175-050.04.04), the files and data processing data of the patients who were admitted to the General ICU of our hospital with the diagnosis of acute intoxication between 1 January 2016 and 10 March 2020 were analyzed retrospectively. The patients were evaluated for age, gender, drug usage for poisoning or the substance they were exposed to, Glasgow Coma Scale (GCS) to the clinic, the number of days hospitalized, the number of days that received mechanical ventilation support, and the mortality status.

Results

The demographic data of the patients are given in Table 1. Between January 1, 2016 and March 10, 2020, 88 people applied to the General ICU of our hospital with an intoxication diagnosis, of which 55 were female (62%) and 33 were male (37%). The female to male ratio was found as F / M: 1.66.

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According to all gender data, intoxication was seen to be the highest between the ages of 17 and 30 (n: 69) and the least age of under 17 (n: 2) (Table 2).

The admission to the ICU was n: 62 patients with 15 GCS, n: 3 with 3 GCS, and n: 1 with 11 GCS. The majority of patients (n:62) had 15 GCS at the entrance to the ICU. In the ICU, 44 patients were treated for 2 days or less, and 1 patients were treated for 10 days or more. Most of the patients were treated in less than 2 days. (Table 3).

There were 9 patients who needed to be connected to the mechanical ventilator in the ICU, 79 patients did not need mechanical ventilator. (Table 4). In the ICU, intoxication with a single agent was seen with the highest antidepressives (n: 11), secondly, with the highest organophosphates (n: 9).

Most patients developed intoxication with multiple agents (n: 21). Intoxication of patients with non-drug agents were seen in 23 patients, and 4 with drug agents. Intoxication with only drugs was seen in 61 (69%) patients. Non-steroidal anti-inflammatory (NSAI) 7, paracetamol was seen in 4 patients, it was unknown what patients received (n: 8). (Table 5)

Table 1. Demographic Data of participant patients

Female (n %)	**55(%62)**
Male (n %)	**33(%37)**
Under 17 Age (n)	**2**
17 age-30 Age (n)	**69**
31 age-40 Age (n)	**10**
Above 40 Age (n)	**7**
Total (Male(n)+Female(n))	**83**

Table 2. Glasgow Coma Scale

Glasgow Coma Scale	Number of Cases (n,%)
3	3(3.4%)
4	2(2.2%)
5	2(2.2%)
11	1(1.1%)
12	9(10.2%)
13	7(7.9%)
14	2(2.2%)
15	62(70.4)

Table 3. Treatment at The Intensive Care Unit

Day	Number of Cases (n,%)
Under 2 Days	44(50%)
3-5 Day	32(36.3%)
6- 10 Day	6(6.8%)
Above 10 Days	1(1.1%)

Table 4. Receiving Mechanical Ventilator

Therapy	Number of Cases (n,%)
Mechanical ventilator treatment	9(10.2%)
No mechanical ventilator treatment	79(89.7%)

Table 5. Intoxication Factors

Intoxication Factors	Number of Cases (n,%)
Multiple Drugs	22(25%)
Antidepressant Drugs	12(13.6%)
Organicphosphate	9(14.7%)
Rat poison	8(9%)
Non Steroid Anti Inflammatory	7(7.9%)
Antiepileptic	5(5.6%)
Paracetamol	4(4.5%)
Marijuana	3(3.4%)
Antihypertensives	2(2.2%)
Coumadin	2(2.2%)
Colchisine	2(2.2%)
Corrosive Substance	1(1.1%)
Insuline	1(1.1%)
Antibiotics	1(1.1%)
Mushroom	1(1.1%)
Unknown Drugs	8 (9%)
Total	**88(100%)**

Discussion

Most of the cases admitted to the hospital with intoxication were due to suicide. This condition with poor prognosis should be treated quickly, effectively and consciously. The frequency and diversity of intoxication cases differ according to regions, countries and cities of the countries. When the treatment people know the toxicity characteristics of the regions, the treatment of the patients is done more quickly and effectively. The patient should be approached quickly and consciously to exclude these harmful substances entering the body without causing toxic effects, not being absorbed by the body, or preventing harmful effects with its antidote (4,5). Poisoning affects individuals' psychological states, socioeconomic status, belief and cultural differences, and easy access to drugs. The majority of poisoning cases are reported to be with medications (45-66%).

In this study, in compatible with the literature, most of the cases occurred with drugs and it was seen that the intoxication with drugs was 69% (6). We have linked the reason why the drug poisoning is close to the upper values in the literature to be able to access the drugs in our society. In 88 patients included in the study, most of the cases were found to be female, and the ratio of the female to male was found to be F / M: 1.66. In our study, the high number of female was found to be compatible with other studies in the literature. We linked the high level of female in intoxication cases to respond quickly to socio-economic status, cultural differences, psychological pressures and difficulties (7,8). In this study, the most common viability of cases was between 17 and 30 years of age (n: 69, 78%) (Table2). This age group, which we can call young and adult, was found to be highly similar with the literature. In this group, we attribute the high incidence of intoxication cases to family incompatibility, unemployment, occupational failure, or inability to take part in society (6,8,9). Most of the patients (n: 62, 70.4%) admitted to the ICU had 15 GCS. We attribute the majority of patients

entering the ICU with a high GCS value, patients coming to the hospital shortly after intoxication and early intervention in the emergency departments (4,10). There were 3 patients with GCS 3, one of them received high doses of drugs and had cardiac arrest upon entering the ICU and did not respond to the CPR. In other words, 1 case (1.13%) out of 88 cases became exitus. During the treatment in the ICU, the majority of patients (n: 79, 89.7%) did not need mechanical ventilators, 9 (10.2%) patients in need of mechanical ventilators and n: 8 of them left the hospital after their treatment was completed. In our study, we attribute the reason for the low number of patients who needed a mechanical ventilator to the patients coming to the hospital early after poisoning and the early intervention and the low toxic dose taken. In our study, half of the patients (n: 44, 50%) were treated for 2 days or less, and 1 patient received treatment for 10 days or more. With an appropriate and fast treatment approach after the early coordination of patients, the duration of treatment in ICUs is reduced and treated early. It was observed that the duration of treatment in the ICU of the patients in current study was compatible with the literatüre (6,7,8). In this study, the cases of intoxication in those who did not take multiple drugs were most frequently with anti depressants and secondly with organo phosphates. Patients receiving antidepressive treatment frequently attempt suicide because of psychological problems and easy access to the drugs they use. In this study, single drug poisoning was most common with antidepressives and it was found to be compatible with the literatüre (6,7,8,10,11). In this study, the second most frequent poisoning was seen with organophosphates. We attribute this to our region being an agricultural area. The 21 (23.8%) patients were poisoned with multiple agents and n: 61 (69%) were poisoned with drugs. It was not known what 8 patients were poisoned with. Although poisoning may vary according to the regions in our country, the most common are drugs, pesticides, domestic chemicals, toxic gases, other chemicals, plants and foods, respectively. In our study, in accordance with other poisoning data in our country, poisoning was most common with drugs and then with pesticides (12).

Conclusion

As a result, poisoning cases increase day by day and become a community problem.

Intoxications occur mostly with medications, and antidepressive agents are the most common drugs. In patients who come to a health center in a short time after poisoning and start treatment quickly,the hospital stay is shortened and the prognosis is better. Since the poisoning types differ according to the regions, this information should be followed and updated by the healthcare personnel.

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Conflict of interest: The authors declare that they have no conflict of interest. The study was authorized by the Harran University Medical Faculty local ethics committee

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