

Retrospective evaluation of patients at follow-up with acute poisoning in Intensive Care Unit

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Abstract

Objective: Poisonings are among the major causes of emergency visits and intensive care hospitalizations. The aim of our study is to evaluate intoxicated patients at follow-up and treated in the Intensive Care Unit (ICU) in terms of demographic characteristics, type of poisonings and results of treatment.

Materials and Methods: Patients at follow-up aged 17 or older admitted with intoxication to the ICU between January 1, 2009 and December 31, 2011 were included in the study. Age, gender, presenting symptoms, duration of hospitalization, type of poisoning, the way of poisoning, medical history, seasons, hospitalization costs, treatment and prognosis of the patients were analyzed.

Results: Totally, 153 (8.9%) out of 1375 follow-up patients in the ICU had acute intoxication. The mean age of intoxicated patients was 29.4 ± 11 , 68% of them were female, 78.4% of them were under 35 years old, and intoxication was most common in the 17–25 age group. 114 of them (94.1%) were suicidal. The most common cause of poisoning was drug-poisoning by 88.2%, and most common presenting symptoms were nausea and vomiting by 71.2%. Mean length of stay was 2.4 ± 1.6 days, and the average cost of hospitalization was 761 ± 884 Turkish Liras or 271 ± 315 USD. 5 patients (3.3%) were intubated because of respiratory failure. There was no mortal case.

Conclusion: Suicide attempts are prominent in acute poisoning, and the young female population is at higher risk. It was found that drugs, particularly antidepressants and antipsychotic agents were the most common cause of poisoning. The high cost of treatment of acute intoxication cases is a major cause of economic burden. Clinicians should be more careful when prescribing such drugs.

Key words: Cost, intensive care, intoxication, prognosis

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Introduction

Acute poisonings are a major health and socioeconomic problem in societies. It was found that 0.7–2.4% of

emergency visits were poisoning cases.^[1,2] 4.1–30.8% of cases of acute poisoning are followed up in Intensive Care Units (ICUs).^[3-6] Intoxicated patients admitted to the emergency department of Sakarya Training and Research Hospital. They were evaluated against the poisoning agent and clinical and laboratory findings of the patient. Patients are referred to ICU if there is a life-threatening situation. In

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our study, we aimed to investigate retrospectively the age, gender, presenting symptoms, duration of hospitalization, type of poisoning, the way of poisoning, medical history, seasons, hospitalization costs, treatment, and prognosis of the patients admitted to ICU due to acute intoxication in this period of 3 years.

Materials and Methods

Patients at follow-up aged 17 or older admitted with intoxication to the ICU of Sakarya Training and Research Hospital between January 1, 2009 and December 31, 2011 were included in our study. Patients with changes in consciousness, arrhythmia, and respiratory distress were followed up in the ICU in accordance with the recommendations of the poison control center regarding the signs and symptoms of the patients. The parameters of the patients such as age, gender, presenting symptoms, duration of hospitalization, type of poisoning (drugs, foods and mushrooms, alcohol, rat poisons and pesticides, toxic gases), the way of poisoning (suicides, accidents), medical history (psychiatric illness, suicide attempts), seasons, hospitalization costs, treatment, and prognosis (healing, rejection of treatment, referral, exitus) were screened retrospectively and recorded. Statistical analyses were performed using SPSS 17.0 software (SPSS Inc., Chicago, IL). Quantitative variables were expressed as arithmetical mean \pm standard deviation and qualitative variables were expressed as percentages.

Results

Totally, 153 (8.9%) out of 1375 follow-up patients in the ICU had acute intoxication. The mean age of 153 intoxicated patients was 29.4 ± 11 , 68% of them were female, and 78.4% of them were under 35 years old. 144 (94.1%) were suicide attempts, 9 (5.9%) were diagnosed as poisoning due to accidents/exposure and admitted to the ICU. The most common cause of poisoning was drug-poisoning by 88.2%, and it was found that taking multiple drugs (34.8%) and antidepressant-antipsychotic drugs (34%) were the most common in drug-poisoning. The most common presenting symptom was nausea and vomiting by 71.2%. Poisoning was more frequent (33.3%) in winter. There were 9.2% psychiatric illness and 2% suicide attempts in the histories of patients. 3.3% of patients were intubated because of respiratory failure. Mean length of stay was 2.4 ± 1.6 days, and the average cost of hospitalization was 761 ± 884 Turkish Liras or 271 ± 315 USD. In addition to intravenous fluid treatments, all patients were treated with gastric lavage and activated carbon. 10 (6.5%) patients were treated with N-acetylcysteine due to poisoning with toxic doses of paracetamol, 1 (0.6%) patient was treated with hemodialysis due to intoxication with toxic doses of

carbamazepine. There were no mortal or referral cases. Findings are summarized in Table 1.

Table 1: Demographic and prognostic characteristics of the patients

Parameter	n=153 (%)
Mean age (years)	29.4 \pm 11
Age group	
Between 17 and 25	69 (45.1)
Between 26 and 35	51 (33.3)
Between 36 and 45	20 (13.1)
Between 46 and 55	7 (4.6)
\leq 56	6 (3.9)
Reason	
Suicide	144 (94.1)
Accident/exposure	9 (5.9)
Symptoms	
Nausea-vomiting	109 (71.2)
Brain fog	80 (52.3)
Dizziness	9 (5.9)
Palpitation	1 (0.7)
Cause of intoxication	
Drugs	135 (88.2)
Rat poison and pesticides	13 (8.5)
Food and mushrooms	2 (1.3)
Alcohol	2 (1.3)
Toxic gases	1 (0.6)
Drug group	
Multidrugs	47 (34.8)
Antidepressants-antipsychotics	46 (34)
Analgesics	20 (14.8)
Unknown	11 (8.1)
Other (antihypertensives, antidiabetics, anticoagulants, antiepileptics, antibiotics, etc.)	11 (8.1)
Season	
Spring	39 (25.5)
Summer	33 (21.6)
Autumn	30 (19.6)
Winter	51 (33.3)
History	
Psychiatric diseases	14 (9.2)
Suicide history	3 (2)
Treatment	
Gastric lavage and activated carbon	153 (100)
N acetyl cysteine	10 (6.5)
Hemodialysis	1 (0.7)
Penicillin	1 (0.7)
Pralidoxime	2 (1.3)
Length of stay (days)	2.4 \pm 1.6
Cost (USD)	271 \pm 315
Mechanic ventilator requirement	5 (3.3)
Result	
Healing	148 (96.7)
Discharged at his/her own request	5 (3.3)
Exitus	0 (0)
Referral	0 (0)

Discussion

For all patients admitted to the ICU due to acute intoxication, airway patency was provided, intravenous access was opened, vital data were monitored, neurological and systemic examination were performed and poisoning control center was informed. Acute intoxication is a major health and socioeconomic problem since it causes morbidity and mortality and increases spending on health. Early diagnosis and treatment should be carried out due to the risk of morbidity and mortality in case of clinically suspected acute intoxication. For this, it is necessary to know the etiology and demographic characteristics.

The ratio of patients who were followed in intensive care due to poisoning was found as 4.1–30.8% in Turkey,^[3,4,7] whereas this ratio was 2.3–9.3% in the literature.^[5,8] In our study, 8.9% of follow-up patients in the ICU had acute intoxication.

It was found that 78–92% of the poisoning cases followed up in the ICU were caused by a suicide attempt.^[5,7,9] In our study, it was determined that of the patients admitted to the ICU due to poisoning, 144 (94.1%) were suicide attempts, and 9 (5.9%) were poisoning due to accidents/exposure, consistent with the literature.

Looking at the demographic data of the studies conducted in Turkey, female gender ratio was 71.2–82%, ratio of patients aged 35 or younger was 72.1–82%, and the ratio of a history of psychiatric illness was found as 15.7–42%.^[3,9,10] Looking at the demographic data of the studies worldwide, female gender ratio was 49.3–69.2%, ratio of patients aged 40 or younger was 75%.^[5,11] In our study, female gender ratio of 68% and the 78.4% ratio of patients aged 35 or younger was consistent with the studies. There were 9.2% psychiatric illness and 2% suicide attempts in the histories of patients. The importance of the issue is increased further due to the fact that majority of patients are young and healthy.

Among the causes of intoxication in studies conducted in Turkey, ratio of combined drug intoxication was 28.6–48%, the ratio of antidepressant-antipsychotic drugs was 20.6–23.8% and the ratio of analgesics was 5.6–56%.^[3,7,9] Among the causes of intoxication in studies conducted worldwide, the ratio of combined drug was 17.9%, the ratio of antidepressant-antipsychotic drugs was 5–25%, the ratio of analgesics was 7.8–21%, and the ratio of pesticides was 39.5%.^[8,11] In our study, drug-poisoning was found in 88.2% of the patients. The drug intoxications 34.8% was combined drugs, 34% was antidepressants and antipsychotics, and 14.8% was analgesics. Furthermore, antidepressant drugs were more common in the group that takes multiple drugs. These ratios are consistent with the literature.

Mean length of stay was 2.48 ± 2.78 days in a study.^[7] In our study, the mean length of stay was determined as

2.4 ± 1.6 days. Although overall mortality of acute poisoning cases is low, mortality is high in acute pesticide-poisoning and aluminum phosphide poisoning.^[5] Mechanical ventilation was reported as 2.6–5.3%.^[9,10] The mortality rate in Turkey was determined as 0.1–2.9%^[9,10,11] and it was found as 2.8–27%^[8,12,13] worldwide. There was no mortality in our study and mechanical ventilation was necessary only in 5 patients (3.3%) due to respiratory failure. The reason for the lack of mortality in our study was attributed to the low ratio of pesticide-poisoning observed, which has a higher mortality rate.

In studies, the cost of hospitalization was determined as 405 ± 241 Turkish Liras and 144 ± 90 USD.^[14,15] In our study, the average hospitalization cost was determined as 761 ± 884 Turkish Liras or 271 ± 315 USD. This higher cost was attributed to the follow-up of patients in the ICU.

Conclusion

Suicide attempts are prominent in acute poisoning, and the young female population is at higher risk. It was found that drugs, particularly antidepressants and antipsychotic agents were the most common cause of poisoning. The high cost of treatment of acute intoxication cases is a major cause of economic burden. Clinicians should be more careful when prescribing such drugs.

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Conflicts of interest

There are no conflicts of interest.

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