



Intoxication Cases in an Intensive Care Unit

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Abstract

Aim: Intoxication is the development of unwanted effects due to exposure to an agent. We retrospectively investigated intoxication cases requiring intensive care treatment, and aim to present demographics, etiologies and prognoses.

Material and Methods: We retrospectively investigated records of 23 patients, who were diagnosed with acute drug intoxication and treated in surgical intensive care unit during January 2013 and January 2014.

Results: Data from a total of 23 patients (12 female, 52,5%) were analysed. The mean age of the patients was 26 ± 10 years in women and 37 ± 19 years in men. The reason of acute intoxication was suicide attempt with drugs in twenty patients (87%), bee bites in 2 patients (9%), and alcohol intoxication in one patient (3%). Five patients required mechanical ventilation secondary to respiratory insufficiency for an average of 9.6 days. The overall average duration of intensive care stay was 4.6 days.

Conclusion: We conclude that majority of patients requiring intensive care treatment due to acute intoxication were female patients who attempted suicide and these patients required a very short duration of follow-up. We are in the opinion that follow-up quality of these patients and clinical management of intensive care units may benefit from periodical retrospective analysis of acute intoxication cases.

Keywords: Intensive Care; Intoxication; Suicide.

Bir Yoğun Bakım Servisindeki İntoksikasyon Olguları

Özet

Amaç: Zehirlenme, madde maruziyeti sonucu organizmada istenmeyen yan etkilerin gözlenmesidir. Bu çalışmamızda yoğun bakım ihtiyacı olan intoksikasyon vakalarının demografik özelliklerini, etiolojisi ve prognozlarını retrospektif olarak değerlendirmeyi amaçladık.

Gereç ve Yöntemler: Hastanemiz Cerrahi Yoğun Bakım Ünitesinde Ocak 2012 – Ocak 2014 tarihleri arasında akut ilaç zehirlenmesi tanısı ile yatırılan 23 olgu geriye dönük olarak incelenmiştir.

Bulgular: Toplam 23 hastanın (12 kadın %52,2) verileri incelendi. Yaş ortalaması kadınlarda 26 ± 10 yıl, erkeklerde $37\pm 18,7$ yıl idi. Akut zehirlenme sebebi 20 hastada (%87) intihar amaçlı ilaç alımı, 2 hastada (%9) arı sokması, 1 hastada (%3) alkol alımıydı. Yoğun bakımda bir yılda takip ettiğimiz vakaların %7,9'u intoksikasyon olguları idi. 5 hastada (%22) solunum yetmezliğine sekonder mekanik ventilatör ihtiyacı oldu ve ortalama 9,6 gün mekanik ventilatöre bağlı kaldıkları belirlendi. Yoğun bakım yatış süresi ortalama 4,6 gündü.

Sonuç: Akut intoksikasyon nedeniyle yoğun bakım ihtiyacı görülen hastaların çoğunluğunun, suisid amaçlı ilaç alan bayan hastalar olduğunu ve çok kısa süreli takip gerektirdiklerini saptadık. Akut intoksikasyon hastalarının retrospektif incelenmesinin, bu hastaların takip kalitesi ve yoğun bakım ünitelerindeki klinik işleyişin iyileştirilmesi açısından periyodik olarak tekrarlanmasının faydalı olacağı kanaatindeyiz.

Anahtar Kelimeler: Yoğun Bakım; İntoksikasyon; Suicid.

INTRODUCTION

Intoxication is the emergence of undesirable effects in any of the functions of organism after exposure to a substance (1). The clinical effects of intoxication may range from medication or chemical substance intake for suicidal reasons to anaphylactic reactions following bee stinging. Therefore, acute intoxications constitute one of the major health problems worldwide (2).

The course of improvement in intoxicated cases vary depending on the contents of the poisoning substance, duration of exposure, and presence of additional diseases. Some intoxication cases may require follow-up in intensive care unit due to respiratory failure. With organ failures added to the medical picture, mortality may increase (3). 5-30% of intensive care unit beds are occupied by poisoned patients (4).

The majority of intoxication cases are seen in young women attempting to commit suicide by ingesting drugs. It has been stated that intake of psychoactive drugs are more common in such attempts (5, 6).

In this study, we aim to evaluate demographic characteristics, etiologies, and prognoses of intoxication cases requiring intensive care retrospectively.

MATERIALS and METHODS

Having the approval from the Ethics Committee of the Faculty of Medicine, Recep Tayyip Erdoğan University, we retrospectively studied 23 poisoning cases who had been admitted to the Intensive Care Unit (ICU) due to acute drug intoxication between 1 January 2012 and 31 December 2013. Throughout the study, we have evaluated the file records in terms of gender, age, consciousness, Glasgow Coma Scale (GCS), ingested medication or drugs, reasons behind drug intake, length

of stay in intensive care unit, hemodiafiltration and mechanical ventilation requirements, and mortality.

RESULTS

We analysed the data of a total of 23 patients; 12 females (52,2%) and 11 males (47.8%). The average age of female patients was 26 ± 10 years; this was $37\pm 18,7$ years in male patients. The Glasgow Coma Score of the patients at first admission was $14\pm 2,8$ (Table 1).

The causes of poisoning were suicide (in 20 patients, 87%), bee stings (2 patients, 9%), and alcohol intake (1 patient, 3%) (Figure 1).

Of the 23 patients who attempted suicide, 12 (52%) had already been using prescription drugs because of psychiatric disorders, 10 patients (43%) had taken multiple types of drugs while 8 (35%) patients had had antidepressants and 4 patients (17%) had ingested psychoactive drugs (Table 2).

7,9% of the patients followed in our intensive care unit in a year were intoxication cases. 5 patients (22%) followed for acute intoxication required mechanical ventilation due to respiratory failure; these patients used mechanical ventilation for an average of 9,6 days. 2 of these patients were the bee sting cases who developed shock, another 2 had undergone surgery for embolism due to tianeptine use, and one was a morbidly obese patient who developed acute respiratory failure. The average length of stay for patients admitted to the intensive care unit for acute intoxication was 4,6 days. Of the 2 intoxication patients who were admitted as exitus cases (8,6%), one was lost due to secondary shock following anaphylaxis due to bee stinging. The other patient died due to acute respiratory failure following multiple drug intake. We observed that none of the intoxicated patients required hemofiltration.

Table 1. Gender and age distribution of the patients.

Gender	Number (in percentages)	Mean age (years)
Female	12 (52,2)	26 ± 10
Male	11 (47,8)	$37\pm 18,7$

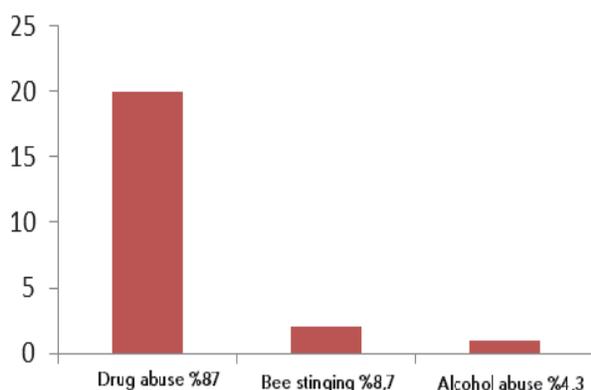


Figure 1. Causes of intoxication.

Table 2. Types of drugs abused for suicidal attempts.

Drugs abused for suicidal attempts	Percentage %
Antidepressant	34,78
Psychoactive drugs	17,39
NSAID and Paracetamol	17,39
Benzodiazepine	8,69
Antibiotics	4,34
Herbal drugs	4,34

DISCUSSIONS

Intoxication can develop because of drug related or non-drug related causes. In the western countries, use of alcohol and narcotics are among the major non-drug related intoxications (7). Intoxication due to drugs is on the top of the list in Turkey. Although there are differences between geographical regions as far as the non-drug related causes of intoxication, organophosphate poisoning is among the common reasons (8). 87% of the cases followed and treated in our intensive care unit that have been included in this study were patients intoxicated due to drug use. Some of the studies in the literature claim that antidepressants and psychoactive drugs are in the lead as reasons for intoxication while some other studies suggest that analgesics and benzodiazepines are the most common causes of poisoning (9-11). These cases were formerly diagnosed patients who were receiving treatment and had taken over much of the therapeutic dose of the prescribed medications. Suicide attempts are widespread in patients receiving psychiatric treatment, especially for depression. It has been reported that half of patients attempting suicide receive psychiatric treatment previously (12, 13).

Non-steroidal anti-inflammatory drugs (NSAIDs) and acetaminophens were the second most common reasons in our intoxication cases due to drug intake. Since they are easily accessible, we believe that they are frequently being used alone or in combination with other drugs (14).

The majority of drug-intake related intoxication for suicidal reasons are seen in females between the ages of 15 and 34 (15, 16). Consistent with the literature, 52.2% of our patients were females with a mean age 26 ± 10 years. This situation is more common in males in middle ages.

Acute intoxication cases are first evaluated in the emergency room. Only uncomplicated cases that require short-term observation are treated in ERs. However, cases that call for long-term observations, patients with additional diseases who require consciousness and breathing monitoring, and complicated intoxication cases such as those related to multiple drug use are monitored and treated in intensive care units. Because of complications mechanical ventilation therapy and invasive monitoring may entail and because ICUs are risky environments for infections, it is very significant to discharge patients and consult them to clinics for follow-up and further treatment as soon as possible to prevent mortality and morbidity. The average length of stay in

intensive care units for intoxicated patients was found to be 2,7 days by Özayar et al. and 3,7 days by Yagan et al. (16, 17). This was 4,6 days in our study. We believe that this was because of the two exitus patients who stayed in the intensive care unit longer than the other patients.

Kaya et al.'s study on intoxicated cases in intensive care unit have revealed an average mechanical ventilation requirement duration of $8,1 \pm 10.6$ days (18). Similar to this study, five patients who required mechanical ventilator support in our study spent an average of 9,6 days connected to mechanical ventilator.

In general, it has been reported by some studies that up to 5-30% of beds in ICSs are occupied by poisoning cases (4). In our study, we have observed that 7.9% of the cases we dealt with were intoxicated patients over a period of two years and ICU bed occupation rate of these patients was 3.9%. The majority of intoxication cases admitted were followed in our third level ICU while a fewer number of patients were monitored in our hospital's internal medicine and intensive care units. Only the cases we followed in ICU were included in our study. This is because the ICU bed occupation rate in our study was lower.

Consequently, we noted that most of the intoxication patients we followed were female patients who had been admitted due to uncontrolled drug intake to commit suicide. Although many intoxication cases are discharged in good health once effects of drugs are eliminated, presence of additional diseases may result in mortal combinations. Even though the number of patients we followed in our clinic was small, we are of the opinion that retrospective studies should be published periodically both for the sake of patients and improvement of clinical functioning in intensive care units.

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