

Retrospective analysis of the intoxication cases followed in an intensive care unit

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ABSTRACT

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Intoxications occur accidentally or due to suicide attempts and some cases are evaluated in Intensive Care Unit (ICU). In this study, we aimed to evaluate the patients older than 18 years old who were admitted to our second level intensive care unit from emergency department between 2010-2013. All the patients with prediagnosis of poisoning who were admitted to ICU were evaluated with respect to their demographic properties, etiology of poisoning, substance that exposed, Glasgow Coma Scale (GCS) score, length of stay, methods of treatment and prognosis of the patient. Of the patients, 70.9% were female, 29.1% of them were male and their mean age was 31.13±0.89. Of the all cases, 76.7% were drug poisoning 11.6% food poisonings, 5.8% carbonmonoxide poisoning, 4% overdosage of alcohol and 1.8% insect and snake biting and 94.3% of them were due to suicide attempt, 5.7% of them were accidental exposure. The mean age of the suicide group patients was 26.4±0.7 years and 82.3% of them were female, 17.7% of them were male. In the poisoning cases of the suicide group, analgesic and antipyretic drugs were the first with 43% rate and antidepressants and/or anxiolytics were the second with 29% rate. GCS score was 13 or more than 13 in 99.2% of the patients who were admitted to ICU. The mean hospitalisation time was 1.77±0.59 days. All patients of 95.6% had been discharged, while 4.4% of them had been sent to third level ICU. Our mortality rate was zero between the date set. Although active substances, amount and intake methods are important, it is also possible to observe a good prognosis with an effective treatment and early intervention in all poisoning cases.

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1. Introduction

Technological and industrial advances brought about the risk of exposure to a lot of toxic substances (Yilmaz et. al, 2006). Poisonings are the life threatening cases which occur by intake of drugs, food or other substances intentionally or unintentionally. Clinical manifestations range from mild complaints to severe organ failure and fatal intoxications. Suicidal consumption of the drugs constitute the frequent and serious intoxication cases (Demirel, 2010). Recognition of the risk factors such as identification of the causative agents, determination of preventive measures, and urgent intervention in case of intoxication would benefit patients' health and life. The retrospective analysis of the cases which were admitted to our general intensive care unit (ICU) from emergency department for follow up and treatment has been the subject

of our investigation. In this retrospective study, we aimed to put forth our approach to poisoning cases and our patient profile admitted to our ICU between 2010-2013. Patients are evaluated according to their demographic properties, cause of poisoning, exposed substance, Glasgow Coma Score (GCS), length of stay, mechanical ventilation support, methods of treatment and prognosis of the patient.

2. Materials and methods

After approval by the ethics committee (2013/476), we obtained the data of the patients older than 18 years old who were admitted to ICU from emergency department according to their demographic properties, cause of poisoning, exposed substance, GCS score, length of stay, mechanical ventilation support, methods of treatment and prognosis

of the patient. The cases whose files are missing for these data were excluded. Descriptive and frequency statistical analysis was performed using statistical software SPSS 16.0. Descriptive statistical variables were summarized as mean \pm standart deviation and frequency analysis variables were summarized as percentages.

3. Results

Poisoning cases admitted to emergency department of Ordu University Training and Research Hospital hospital between 01.01.2010-31.12.2013 consisted 2.48% of all the patients admitted to emergency unit. Of the cases, 84.9% had been discharged after treatment in emergency unit, 0.1% of them had been sent to third level ICU after the first intervention, 14.9% of them had been admitted and treated in our hospital's second level intensive care unit. Twenty five of 300 patients who admitted to our ICU were younger than 18 years age, they were excluded and 275 remaining patients were analysed. According to the results; 70.9% of the patients were female, 29.1% of them were male and the mean age was 31.1 ± 0.9 years. Poisoning by drugs comprised 76.6% of the cases and 94.3% of them were suicide attempts and remaining 5.7% were accidental exposure patients. Etiologies of other poisoning cases; 11.6% of them were food poisoning, 5.8% of them were carbonmonoxide poisoning, 4.0% of them were overdosage of alcohol and 1.8% of them were insect and snake biting (Fig. 1). The mean age of the patients in suicide group was 26.4 ± 0.7 years and 82.3% of the cases were female and 17.7% of them were male. Of the drugs 43% were analgesic and antipyretic group drugs, 29% were antidepressants and/or anxiolytics, 21% of them were different and multiple drugs (antibiotics, proton pump inhibitors, cardiac rhythm regulators, antihistamines, unknown group and various drugs), 3.0% were pesticides, 2.0% were rats bane and 2.0% were antibiotics (Fig. 2). In 99.2 % of the cases admitted to ICU, GCS was 13 or more than 13. The mechanical ventilation support had been necessary for two of them whose GCS was 5. The mean hospitalization day was 1.8 ± 0.6 days. All the patients of 95.6% were discharged, and 4.4% of them were sent to third level ICU. Our mortality rate was zero between the date set.

4. Discussion

Poisonings are common health problem all over the world and they constitute 0.5-1.6% of the patients who admitted to emergency department in our country (Totoz et al., 2013). Anesthesia and reanimation specialists encounter such poisoning events at intensive care units or during resuscitation of the patients (Demirel, 2010). Diagnosis and intervention of the poisonings should be performed without delay. High rates of survival can be attained with effective and appropriate treatment. For this reason, it is very important that emergency units which perform early diagnosis and treatment and intensive care units which admit and treat such cases reveal their patient profile in their own hospital and region, for reducing the incidence of mortality.

In Turkey, social and familial factors increase suicide tendency in young women and for this reason poisonings with drugs which can be reached easily have been seen frequently in this population (Atay et al., 2012). In our study, incidence of female patients because of drug poisonings were

82.3% and mean age of cases were 26.4 ± 0.7 . In this group, analgesic/antipyretic drugs were the first with the rate of 43% and antidepressants/anxiolytics were the second with the rate of 29%. Similar clinical research have shown that intake of drugs for suicide attempt is high in the young women group (Yılmaz et al., 2006; Yağan et al., 2009). Batıgün (2008) analyzed 1003 suicide cases and demonstrated that, the tools for suicide attempt in women constituted less fatal methods like intake of high dosage of drugs, while the way men preferred carried more fatality risk, like firearms. Taking mostly analgesic and antidepressant group of drugs for suicide can show that, those group of drugs have been used commonly and can be reached easily in society. Aydın et al. (2006) have investigated on 3384 cases and showed that the source of 58.6% of poisonings was drug related, and most of drugs were analgesics and antidepressants. In another study of 284 cases, it has been shown that, 69.4% of acute poisonings have sourced on taking drugs and also most of them were analgesics and antidepressant group (Tüfekçi et al., 2004). The study of Yılmaz et al. (2006) have showed that, 55% of the patients admitted to emergency unit because of poisoning were drug related and 34% of them used tricyclic antidepressants. In our study, drugs encountered in poisoning cases were demonstrated in Fig. 2. Beside these two commonly encountered drugs, we classify antibiotics, proton pump inhibitors, cardiac rhythm regulators, antihistamines and others indeterminate drugs as 'Another Group' drugs.

In our study, GCS, which is used in monitoring brain function and level of consciousness in critically ill patients was 13 or more than 13 in 99.2% of cases admitted to hospital. Two of them whose GCS were five needed mechanical ventilation support. One of them was a female patient who was in respiratory arrest condition because of overdosage of a transdermal opioids analgesic preparation. The other one was a unconscious male patient because of overdose of alcohol intake. Both of these patients needed one day mechanical ventilation support for a day. Transdermal opioids poisoning cases have been come across in literature frequently and appropriate physical examination and early diagnosis in a patient admitted to emergency unit with respiratory arrest and

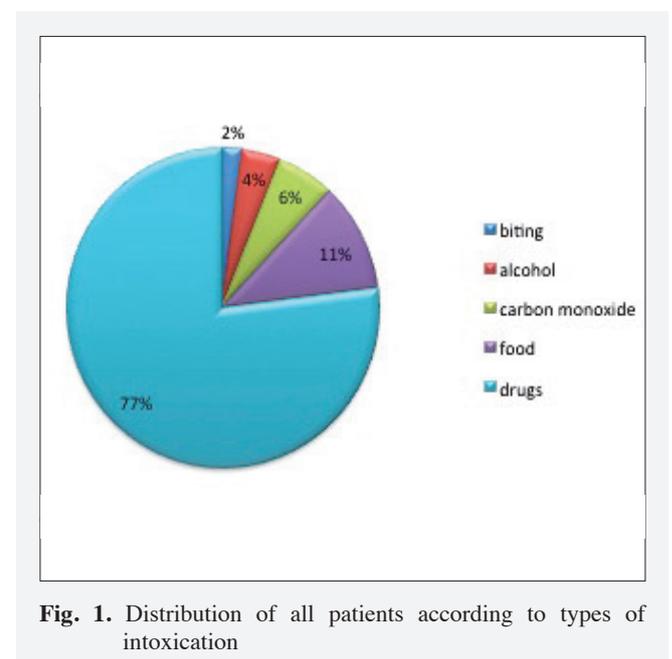


Fig. 1. Distribution of all patients according to types of intoxication

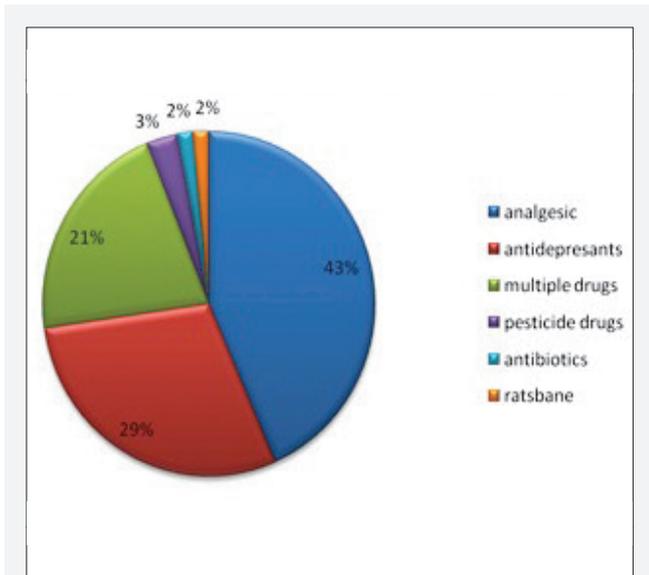


Fig. 2. Distribution of types of drugs according to suicide attempt

probable poisoning is important to prevent life threatening condition. Simplicity of the application causes the abuse of transdermal opioids preparation (Moon and Chun, 2011). Poisoning by insecticides are the important part of drug intoxication. Insecticides are the chemical substances in pesticides group which have been used frequently all over the world to fight against insects, especially in agricultural areas. However inhalation or skin contact of these substances causes unintentional exposure. They have been used intentionally for suicide attempt too. Intentional exposure has been generally realised orally (Saritaş et al., 2007; Sabancı and Aydın, 2008). Three percent of our poisoning cases were caused by insecticides. All of them were taken orally excluding one case who attempted to administer drug parenterally. Mild accidental exposure cases by inhalation or oral route can be treated by decontamination. For other cases with significant symptoms, ICU follow up and pralidoxime treatment for 48 hours gives better results (Saritaş et al., 2007). Only one of our cases had been sent to third level ICU and the others had responded to atropin-PAM and had been discharged.

Some acute poisoning cases in emergency departments are due to carbonmonoxide poisonings. Mostly, these kinds of poisonings have been seen mostly by smoke inhalation of stove that has been burned indoor, or fire. But sometimes it can be suicide deliberate exposure (Sargın et al., 2009; Blässer et al., 2014). Yagan et al. (2009) have reported accidental carbonmonoxide poisonings rate as 19.2% accepted to emergency unit in one year, Akköse et al. (2003) has also reported it as 6.9% in five years. 5.8% of our cases were carbonmonoxide poisonings and the main source of it

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was smoke of stove and all the cases have been occurred by accidental exposure. All cases had responded to 100% oxygen and support treatment and all of them had been discharged.

Poisonings occurred by natural mushrooms which have been found easily in our country, cause various extend of clinical tables from allergic gastroenteritis to fatal liver necrosis (Ergüven et al., 2004; Akdur et al., 2007). 11.6% of food poisonings were due to mushroom poisonings that had been consumed commonly in our city or around its territory. These poisonings have been limited with gastrointestinal symptoms, had not been seen as a serious poisoning cases and no liver enzyme elevation had been identified. Snakes and insect poisonings comprised 1.8% of our cases.

In our country, snake and insect poisonings are encountered mostly in South and Southeastern Region of Anatolia and they are important cause of mortality and morbidity. Systemic or local morbidities may be seen and death occurs in serious cases (Yücel et al., 2006; Yüksel et al., 2009; Kaya et al., 2013). In all of our cases, local complications were seen and they responded to antivenom+dressing therapies and all patients were discharged.

The principle of treatment in poisonings is to remove the toxic substance firstly and prevent its absorption. All the poisoning cases admitted to our emergency unit have been consulted to 114 National Poison Consulting Center of Ministry Of Health that has been serving about poison and poisonings in our country. Follow up and treatment of the patients were organized according to their suggestions. Short duration of mean hospitalization period as 1.8 ± 0.59 days, 95.6% discharge rate of the patients without any complications and having zero mortality rate means that interventions were done in time and effectively in the emergency department and ICU, and also it can be interpreted in favor of patients' overall conditions' wellness and taking lower dose of harmful substance.

While the considerable part of acute poisoning cases are treated in the emergency departments, critical cases are admitted to ICU. Majority of the poisoning cases admitted to our ICU have been suicide attempts by drugs. Analgesics which are provided easily and taken orally constitute the first range of these substances. The patients' prognosis had been well because patients were at younger ages and drug dosages were not in toxic levels. Although the importance of the active substance, pathway of intake and dosage of drug, early intervention and close monitoring are important with respect to good prognosis and low mortality rates. The results of our analysis have been compatible with the studies that had been made before in our country. To delineate the profile of poisoning cases in our ICU will be a guide to plan and treat these cases more effectively.

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