

Demographic and Clinical Characteristics of Applications to the Emergency Service with Mushroom Intoxication

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Abstract

Objective: We aimed to evaluate the demographical and clinical variations and treatment and complications of the patients admitted to emergency department with mushroom intoxication.

Materials and Methods: This is a retrospective study. Patients admitted to the emergency room with symptoms after eating mushrooms, included in the study. Patients with missed data, and patients younger than 18 years were excluded.

Results: 114 patients were included in the study. %58.8 of the cases were female and %41.2 of the cases were male. It was found out that 65 of the patients (%57) had applied to the hospital during the autumn months. 38 patients refused treatment. Hemodialysis was performed in 28 (36.8%) of 76 patients who accepted treatment. Only one patient (0.9%) died during hospitalization.

Conclusion: Mushroom poisoning is an important health problem in our country. Informing the public is essential in preventing poisoning.

Key words: mushroom poisoning, mushroom intoxication, mushroom, emergency service

Özet

Amaç: Acil servise mantar zehirlenmesi ile başvuran hastaların demografik ve klinik özelliklerini, tedavilerini ve komplikasyonlarını değerlendirmeyi amaçladık.

Gereç ve Yöntem: Bu çalışma retrospektif olarak planlanmıştır. Mantar yedikten sonra başlayan semptomları olan ve acil servise başvuran hastalar çalışmaya dahil edilmiştir. 18 yaşından küçük hastalar ve verilerine ulaşamayanlar çalışma dışı bırakıldı.

Bulgular: Çalışmaya 114 hasta dahil edildi. Olguların% 58,8'i kadın, % 41,2'si erkekti. Hastaların 65'inin (% 57) sonbahar aylarında hastaneye başvurdukları tespit edildi. 38 hasta tedaviyi reddetti. Tedavi alan 76 hastanın 28'ine (% 36,8) hemodiyaliz yapıldı. Sadece bir hasta (% 0,9) hastanede yatışı sırasında öldü.

Sonuç: Mantar zehirlenmesi ülkemizde önemli bir sağlık sorunudur. Zehirlenmeyi önlemede halkı bilgilendirmek önemlidir.

Anahtar kelimeler: mantar zehirlenmesi, mantar zehirlenmesi, mantar, acil servis

Introduction

There are about 5,000 mushroom species on earth. However, the number of these mushroom species is not more than hundred¹. Our country is rich in mushroom flora due to its suitable ecological conditions. The mushrooms consumed as a nutrient are rich in protein and contain essential amino acids. However, they do not contain fat and cholesterol and have low calories. Mushroom poisoning is common, especially in the spring and autumn seasons due to the consumption of nutrients in people living in low socioeconomic conditions².

Disease caused by some poisonous compounds in corked mushrooms is called mushroom poisoning or misetusmus. Mushroom poisoning is mostly associated with mild gastro-

intestinal symptoms. Early onset of vomiting, low toxicity of the mushrooms, suggesting that after six hours of vomiting should be thought of poisoning with fatal mushrooms².

Mushrooms shorter period than three hours of onset of signs contain; muscarin, coprin, ibotenic acid, psilocybin toxins. These toxins affect the autonomic and central nervous system. Symptoms of mushrooms with long duration of symptoms appear after 6-24 hours. Gyromytra, Amanita phalloides are from this group³.

Mushroom poisoning is an important health problem in our country that causes mortality and morbidity. In this study we aimed to evaluate the demographical and clinical variations and treatment and complications of the patients admitted to emergency department (ED) with mushroom intoxication.

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Materials and Methods

The population of this retrospective study included all adults who were admitted to the Clinic of Emergency Medicine, Umraniye Training and Research Hospital, Istanbul, Turkey with suspected mushroom intoxication during the date 01.05.2018 and 01.05.2019. The patients who were diagnosed ICD-10 code T62.0 for Toxic effect of ingested mushrooms is a medical classification as listed by WHO under the range -Toxic effects of substances chi, were identified through the computerized medical and laboratory records of the hospital. Patients who is under 18 years of age and have missing data, were excluded from the study.

The data extracted from the patients' files included seasonal variation, age, gender, clinical manifestations, presenting time of clinical manifestations (as hours) and, laboratory records, treatment(hemodialysis), hospitalization and outcome. The application seasons of patients were defined as spring (March, April, and May), summer (June, July, and August), autumn (September, October, and November), and winter (December, January, and February). On admission to the emergency department, blood samples were obtained from patients; Aspartate Aminotransferase (AST), alanine aminotransferase (ALT), γ -glutamyl trans peptidase (GGT), Total Bilirubin, Direct Bilirubin, sodium and potassium were evaluated. Mortality was evaluated as mortality during hospitalization.

In the statistical evaluation of the data, IBM Statistics 16.0(SPSS) statistical package program was used. The baseline patient characteristics are presented as frequencies for categorical variables and as medians and interquartile ranges for continuous variables.

Results

A total of 121 patents were identified through the computerized medical and laboratory records of the hospital. 7 patients were excluded from the study because of being under 18 years of age or missing data. 114 patients were included in the study. %58.8 of the cases (n=67) are female and %41.2 of the cases (n=47) are male. In addition to the fact that the median age of the people who were the subject of the cases was 37 and, interquartile range (IQR) was 24.

The time interval between exposure and time to onset of symptoms was calculated to be 5.9 ± 0.6 hours in average. It was found out that the patients in the 65 of the cases (%57) had applied to the hospital during the autumn months.(Figure1) The number of cases admitted during the autumn was found to be higher than the number of those admitted in the other season with a significant difference ($p < 0.001$).

The most frequent symptoms were nausea and vomiting (70.2%), diarrhea (14.8%), abdominal pain (7.9%). The laboratory records of the cases are summarized in Table 1.

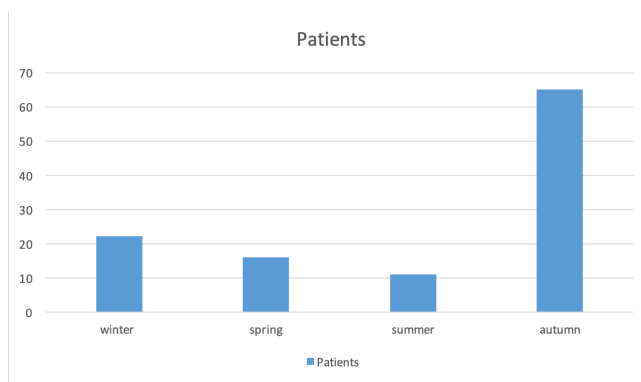


Figure 1. Number of patients approaching emergency department in all years according to seasons

It was found that 38 patients refused treatment. Hemodialysis was performed in 28 (36.8%) of 76 patients, who accepted treatment. The admission clinics of intoxicated patients are shown in Figure 2. The clinics where the patients are admitted are shown in Figure 2. Only one patient (0.9%) died during hospitalization.

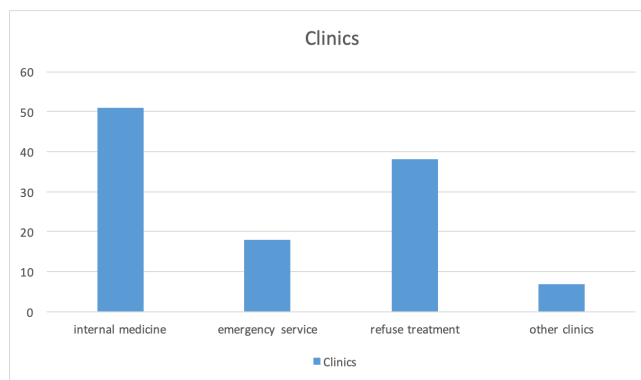


Figure 2. The clinics where the patients are admitted

Discussion

Mushroom poisoning from the genus Amanita is a medical emergency, with Amanita phalloides being the most common species. The typical symptoms of abdominal pain, nausea, vomiting, and diarrhea are nonspecific and can be mistaken for gastroenteritis. If not adequately treated, hepatic and renal failure may ensue within several days of ingestion³.

Although mushroom poisoning is reported in our country, the mortality rate related to this poisoning is not known exactly. This type of poisoning has been examined by independent regional studies conducted in Turkey. No deaths were reported in 64 cases retrospectively reviewed at Firat University for 5 years by Durukan et al⁴. In this study, all

Table 1. The laboratory records of the cases

| Variables | Median | IQR |
|------------------|--------|------|
| AST | 24 | 18 |
| ALT | 21,5 | 18 |
| GGT | 18 | 10 |
| Total Bilirubin | 0.62 | 0.48 |
| Direct Bilirubin | 0.22 | 0.18 |
| Sodium | 137 | 5 |
| Potassium | 4.2 | 0.5 |

Aspartate Aminotransferase (AST), alanine aminotransferase (ALT), γ -glutamyl trans peptidase (GGT)

patients were discharged within 2-4 days. In the Göztepe Training and Research Hospital, pediatric patients were examined by Ergüven et al and it was reported that 4 out of 28 patients who presented with mushroom poisoning died⁵. In Osmangazi University, Tayfun et al has examined 143 mushroom poisoning cases between 1996 and 2000, 4 patients died of liver failure⁶. In our study we found that only one patient died because of mushroom poisoning.

Treatment is usually directed by the patient's symptoms. Symptoms can be variable and can easily be confused with gastroenteritis. In our study most common symptoms were nausea, vomiting, abdominal pain, and diarrhea. Eren et al found that most common symptoms were nausea, vomiting, fatigue, abdominal pain, dizziness and diarrhea as our study⁷.

In treatment of mushroom poisoning, stomach lavage and activated charcoal administration is recommended for the removal of toxins in early applicants. Severe intoxication may result in coma. In such cases, intensive care treatment is required⁸. Therapy of mushroom poisoning consists of supportive measures, detoxication procedures including extracorporeal blood purification methods, and administration of drugs, namely, benzylpenicillin or other beta-lactam antibiotics, silibinin, and NAC. Methods such as plasma replacement, hemodialysis or hemoperfusion are widely used for the removal of toxin. Hemoperfusion and hemodialysis performed within the first 24 hours following fungal infection were reported to be helpful in eliminating toxin⁹. Toxins cleared from plasma rapidly, extracorporeal decontamination treatment is useful only if started very early, soon after the gastrointestinal symptoms occur¹⁰. In our study 38 patients refused treatment. We think that patient refused treatment because of, hemodialysis or hemoperfusion are treatment option after symptomatic treatment without any symptoms.

In our study, there are some limitations. One-third of patients refused treatment. We could not reach the mortality information of these patients. Furthermore, the data belongs to one region and clinic. Consequently, regional differences

are not included in the study. If a similar, but multicenter, study is conducted, it may represent the data of mushrooms intoxication in our country better.

Conclusion

In conclusion, the basic approach to mushroom poisoning is prevention of the disease, by public education, early recognition of the intoxication, and early initiation of specific therapeutic measures.

Conflicts of Interest

The authors declare that they have no conflicts interests.

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