EURASIAN JOURNAL OF EMERGENCY MEDICINE
Original Article
DOI: 10.4274/eajem.galenos.2025.32748
Eurasian J Emerg Med. 2025;24(3): 228-31

Clinical Profile and Prognostic Indicators of Papaver Rhoeas Poisoning in Adults: A Retrospective Analysis from Türkiye

Emin Fatih Vişneci

University of Health Sciences Türkiye, Konya City Hospital, Clinic of Emergency Medicine, Konya, Türkiye

Abstract

Aim: The corn poppy is often consumed as a herbal tea, believed to have various health benefits in traditional medicine; it is especially commonly consumed as food in Anatolia. The aim of this study is to assess the clinical features of patients who presented to the emergency department due to corn poppy poisoning, evaluate the duration of admission, lactate levels, and length of hospital stay, and investigate their effects on prognosis.

Materials and Methods: This retrospective study included 15 patients divided into two groups: mildly symptomatic (n=8) and severely symptomatic (n=7). Gastrointestinal, neurological, and cardiac symptoms, latency time between ingestion and symptom onset, lactate levels, and hospitalization duration were compared. Inferential statistical analyses were performed using Fisher's exact test for categorical variables, such as time to presentation category and hospital stay length category, due to the small sample size. The Mann-Whitney U test was applied for comparisons of symptom scores between groups. A p value of <0.05 was considered statistically significant.

Results: Severe cases exhibited frequent gastrointestinal and both mild and severe neurological symptoms, but no cardiac manifestations. In contrast, mild cases presented earlier, had lower lactate levels, and shorter hospital stays. Severe neurological symptoms and elevated lactate levels were significantly associated with poor prognosis.

Conclusion: Corn poppy poisoning can present emergency services. This study also suggests that toxicity severity may not solely depend on the quantity ingested but also on the plant's developmental stage. Public and healthcare providers' awareness of the potential toxicity of traditionally used plants like Papaver rhoeas should be increased.

Keywords: Papaver rosea, poisoning, traditional medicine, emergency

Introduction

Papaver rhoeas, commonly known as corn poppy, is widely cultivated in Türkiye and used in folk medicine for ailments such as cough, insomnia, and gastric discomfort (1,2). In addition, depending on the climate conditions, poppies emerge in March or April and bloom within 1-2 months. (Figure 1.)

The use of plants for healing purposes is as common as the consumption of fresh herbs as food, especially in the spring months in Anatolia (3).

Despite its perceived harmlessness due to its herbal origin, the plant contains alkaloid compounds capable of producing toxic effects, particularly on the central nervous and gastrointestinal systems. Cardiac involvement has also been reported in some cases (4,5). Alkaloid components, when taken in excessive doses, can cause depression, especially with a sedative effect on the central nervous system; this may manifest as nausea, vomiting, changes in consciousness, convulsions, and miotic pupils (6). In addition, it has been reported in emergency department cases that this plant can produce anticholinergic and antidopaminergic effects, resulting in symptoms similar to acute anticholinergic syndrome (such as irritation, agitation, hypertension, tachycardia, muscle twitching) (7).

The increasing popularity of herbal products and the general assumption that "natural" means safe may contribute to their misuse, particularly in rural populations. Existing literature

Corresponding Author: Emin Fatih Vişneci MD, University of Health Sciences Türkiye, Konya City Hospital, Clinic of Emergency Medicine, Konya, Türkiye
E-mail: drfatihvisneci@hotmail.com **ORCID ID:** orcid.org/0000-0001-8050-4433
Cite this article as: Vişneci EF. Clinical profile and prognostic indicators of papaver rhoeas poisoning in adults: a retrospective analysis from Türkiye. Eurasian J Emerg Med. 2025;24(3): 228-31.

Received: 21.07.2025
Accepted: 21.08.2025
Published: 10.09.2025

Figure 1. Poppy Grass and- Poppy flower

on corn poppy toxicity primarily includes pediatric case reports (8).

However, its potential to cause severe toxic effects in adults has also been noted. Lactate levels have been reported as prognostic indicators in poisoning cases, although studies specifically addressing this in Papaver rhoeas poisoning are scarce (9,10). This study aims to contribute to the literature by analyzing the symptom profiles, time of presentation, lactate levels, and length of hospital stay in adult patients with corn poppy poisoning and examining their relationship with clinical severity.

Materials and Methods

The retrospective study was intended to be conducted at the emergency department of a tertiary care training and research hospital between January 2024 and May 2025. A total of 15 patients who were diagnosed with Papaver rhoeas (corn poppy) poisoning were included. All patients had consumed the poppy flower either as herbal tea for health or as a food by adding the flower's leaves into their meals before the onset of symptoms. Clinical records and laboratory results were obtained from the hospital's digital archive. Patients were categorized into two groups based on the severity of symptoms: mildly symptomatic (n=8) and severely symptomatic (n=7). The mild group included cases presenting with gastrointestinal symptoms or mild neurological manifestations, while the severe group consisted of patients exhibiting serious neurological symptoms such as seizures, convulsions, or loss of consciousness. The following parameters were evaluated: gastrointestinal, neurological, and cardiac symptoms; latency between ingestion and symptom onset (<1 hour vs. >1 hour); serum lactate level (<2 mmol/L vs. >2 mmol/L); and length of hospital stay (<48 hours vs. >48 hours).

The study was approved by the local ethics committee of University of Health Sciences Türkiye Konya City Hospital (desicion number: 11-67, date: 12.06.2025).

Statistical Analysis

The data analysis was performed using the IBM SPSS Statistics 21.0 (IBM Corp, Armonk, N.Y., USA) software package. Descriptive statistics were used, and Fisher's exact test was performed for categorical variables due to the small sample size. The Mann-Whitney U test was applied for comparisons of symptom scores between groups. A p value of <0.05 was considered statistically significant. Group comparisons were visualized graphically.

Results

The median age of the participants in the study was 60 (Q1=44, Q3=69); with 66.67% (n=10) being female and 33.33% (n=5) being male.

Among the 15 patients included in the study, 8 were classified as mildly symptomatic and 7 as severely symptomatic. The findings suggest that the toxic effects of corn poppy primarily involve the central nervous and gastrointestinal systems in severe cases, with limited cardiac involvement (Figure 2). Patients in both groups had no predisposing diseases in their history. Symptom distribution, time to presentation, lactate levels, and hospitalization durations are summarized below (Table 1). In the severe group, gastrointestinal symptoms, as well as mild and

severe neurological symptoms, were frequently observed, while no cardiac symptoms were documented. Time to presentation (p=0.041), serum lactate levels (p=0.033), and length of hospital stay (p=0.037) demonstrated statistically significant differences between the patient groups. Patients in this group, who were classified as severe, presented later (>1 hour after ingestion), having elevated lactate levels (>2 mmol/L), and experiencing longer hospitalizations (>48 hours) (Figure 3).

In contrast, symptom scores exhibited a markedly stronger distinction between the groups (p=0.002). Patients in this group were classified as mild, were presented earlier (<1 hour), had lower lactate levels (<2 mmol/L), and required shorter hospitalization (<48 hours). The presence of severe neurological symptoms and high lactate levels was strongly associated with poor prognosis (Figure 4).

Discussion

This study represents one of the few clinical analyses evaluating symptom severity, time to presentation, lactate levels, and hospitalization duration in patients admitted to the emergency department with Papaver rhoeas (corn poppy) poisoning. The findings suggest that, contrary to its common perception as a harmless herbal remedy, corn poppy may lead to significant toxicity (11). Most patients in the severe group presented with prominent neurological symptoms, which can be attributed to the isoquinoline alkaloids found in Papaver species that affect the central nervous system. The high frequency of gastrointestinal symptoms in both mild and severe groups indicates systemic toxicity. Interestingly, cardiac symptoms were observed only in a few mild cases and were absent in the severe group (12-15). Late presentation (>1 hour post-ingestion) and elevated serum lactate levels (>2 mmol/L) were significantly associated with severe poisoning. This aligns with previous literature emphasizing the prognostic value of lactate in various toxicological conditions. In our study, high lactate levels were correlated with longer hospital stays and more severe neurological manifestations, highlighting their clinical utility for early risk stratification in corn poppy toxicity (16,17). While most existing reports on corn poppy poisoning are isolated case studies, this study provides a comparative clinical analysis of adult patients. Another notable observation was that the majority of cases occurred during early spring (late March to early May), corresponding with the early sprouting phase of the plant before flowering. Traditional beliefs suggest that corn poppy should be consumed before blooming, which may have a biochemical basis: toxic alkaloid concentrations could vary depending on the plant's developmental stage (18). This hypothesis is supported by analogies to mushroom toxicity, in which biochemical

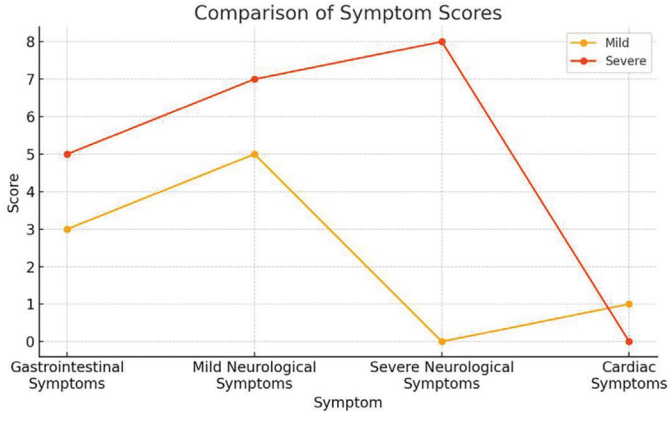

Figure 2. Comparison of symptom scores

Table 1. Comparative analysis of patient groups	
Time to presentation (<1 h vs >1 h)	p value=0.041
Lactate level (<2 vs >2)	p value=0.033
Hospital stay (<48h vs >48h)	p value=0.037
Total symptom score (mild vs severe)	p value=0.002

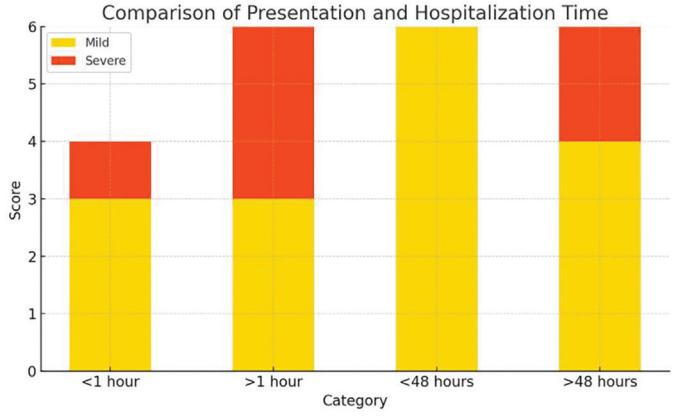

Figure 3. Comparison of presentation and hospitalization time

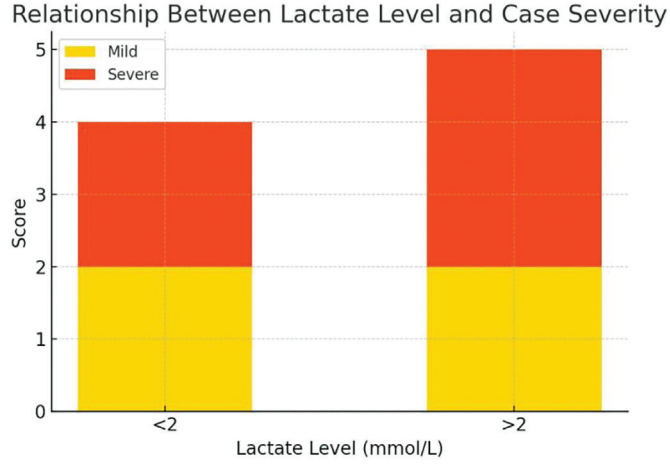

Figure 4. Relation between lactate level and case severity

composition changes with growth phases. Future prospective studies should investigate the phytochemical profile of Papaver rhoeas across different growth stages (e.g., sprouting, flowering, and seed phases) to identify the specific compounds responsible for toxicity. Chromatographic and molecular analyses performed in university-based botany and pharmacognosy laboratories could provide valuable contributions to the scientific literature.

Study Limitations

The limited number of cases in our study can be attributed to the seasonal variability of the poppy flower, which affects both its availability and the clinical presentation of related toxicological cases. Although some variables reached statistical significance, the small sample size limits the generalizability and power of the results. There is no specific test to determine the severity of Papaver rhoeas poisoning.

Conclusion

Although rare, corn poppy poisoning can lead to serious clinical manifestations in emergency settings. Delayed presentation, elevated lactate levels, and neurological symptoms are key indicators of poor prognosis. The public perception that herbal products are inherently safe must be re-evaluated, and healthcare professionals should be educated about the potential toxicity of traditional medicinal plants. This study also suggests that toxicity severity may not solely depend on the quantity ingested but also on the plant's developmental stage. Milder symptoms were typically observed with early spring consumption (pre-bloom), while more severe outcomes were associated with ingestion closer to the flowering stage. Future research should focus on chemical analyses of the plant at various growth stages to determine which phases present increased toxicological risks.

Ethics

Ethics Committee Approval: The study was approved by the local ethics committee of University of Health Sciences Türkiye Konya City Hospital (desicion number: 11-67, date: 12.06.2025).

Informed Consent: The retrospective study was intended to be conducted at the emergency department of a tertiary care training and research hospital between January 2024 and May 2025.

Footnotes

Conflict of Interest: No conflict of interest was declared by the author.

Financial Disclosure: The author declared that this study received no financial support.

References

1. Gürbüz İ, Gençler Ö, Akaydın G, Salihoğlu E, Günbatan T, Demirci F, et al. Folk medicine in Düzce Province (Turkey). Turkish Journal of Botany. 2009;43:769-84.
2. Sarı AO, Oğuz B, Bilgiç A, Tort N, Güvensen A, Şenol, SG. Ege ve Güney Marmara bölgelerinde halk ilacı olarak kullanılan bitkiler. Anadolu Ege Tarımsal Araştırma Enstitüsü Dergisi. 2010;20:1-21.
3. Ceylan F, Akar Şahingöz S. Yenilebilir otlar tüketim alışkanlığı: düziçi örneği. Journal of Tourism and Gastronomy Studies. 2019;7:2204-25.
4. Raman SV, Jacob J. Mydriasis due to datura inoxia. Emerg Med J. 2005;22:310-1.
5. Balabanli C, Albayrak S, Türk M, Yüksel O, Some weeds are found in Turkey's pasture and its impact on animals, Journal of the Faculty of Forestry. 2006;2:89-96.
6. Koçak S, Karabulut K, Ertekin B, Nak H, Cander B. Red poppy (Papaver rhoeas) poisoning: a report of three cases. Cyprus J Med Sci. 2016;1:11-3.
7. Zargari A. Medicinal plants. Tehran University of Medical Sciences. 1997.
8. Amathieu R, Levesque E, Merle JC, Chemit M, Costentin C, Compagnon P, et al. Severe toxic acute liver failure: etiology and treatment. Ann Fr Anesth Reanim. 2013;32:416-21.
9. Deng JF. Clinical and laboratory investigations in herbal poisonings. Toxicology. 2002;181-182:571-6.
10. Soulimani R, Younos C, Jarmouni-Idrissi S, Bousta D, Khallouki F, Laila A. Behavioral and pharmaco-toxicologicalstudy of Papaverrhoeas L. in mice. J Ethnopharmacol 2001;74:265-74.
11. Kültür S. Medicinal plants used in Kirklareli province (Turkey). J Ethnopharmacol 2007;111:341-4.
12. Adukauskiene D, Dockiene I, Naginiene R, Kevelaitis E, Pundzius J, Kupcinskas L. Acuteliver failure in lithuania. Medicina (Kaunas). 2008;44:536-40.
13. Jóhannsson M, Ormarsdóttir S, Olafsson S. Hepatotoxicity associated with the use of Herbalife. Laeknabladid. 2010;96:167-72.
14. Khashab M, Tector AJ, Kwo PY. Epidemiology of acute liver failure. Curr Gastroenterol Rep. 2007;9:66-73.
15. Stickel F, Kessebohm K, Weimann R, Seitz HK. Review of liver injury associated with dietary supplements. Liver Int. 2011;31:595-605.
16. Kalav YN, Sariyar G. Alkaloids from Turkish Papaver rhoeas. Planta Med. 1989;55:488.
17. Pourmotabbed A, Rostamian B, Manouchehri G, Pirzadeh-Jahromi G, Sahraei H, Ghoshooni H, et al. Effects of Papaver rhoeas extract on the expression and development of morphine-dependence in mice. J Ethnopharmacol. 2004;95:431-5.
18. A poster showing three different stages of a Common Poppy flower (Papaver rhoeas): bud, flower and fruit (capsule). Avaible from: https://tr.wikipedia.org/wiki/Dosya:Poster_papaver_3a.jpg