

**Case Report / Olgu Sunusu**

**Lethal Colchicine Intoxication**

**Öldürücü Kolşisin Zehirlenmesi**

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**ABSTRACT**

Colchicine is a well-recognized drug, that is used for the treatment of familial Mediterranean Fever, acute gout arthritis, amyloidosis and primary biliary cirrhosis. Colchicine is an alkaloid drug that is derived from *Colchium autumnale*. Diarrhea, sickness, vomiting, abdominal pain, excessive deficiency of electrolytes and fluid are common symptoms of intoxication due to higher absorption of colchicine from gastrointestinal surface. Colchicine has a narrow therapeutic index and suicide attempted with this drug has a higher mortality. Colchicine intoxication is a critical and life-threatening condition for patients so that physicians should be aware of over dose and complications of this drug. Herein, we reported a case of colchicine overdose for suicide attempt.

**Key words:** colchicine intoxication, suicide, lethal

**ÖZET**

Kolşisin Ailevi Akdeniz Ateşi, amiloidoz, akut gut artriti ve primer bilier siroz tedavisinde kullanılan iyi bilinen bir ilaçtır. Kolşisin, *Colchium Autumnale* bitkisinden elde edilen alkaloid bir ilaçtır. İshal, bulantı, kusma, karın ağrısı, elektrolit ve sıvının aşırı kaybı gastrointestinal yüzeyden aşırı emilen kolşisinin zehirlenme bulgularıdır. Kolşisin dar bir tıropetik indekse sahip olduğundan bu ilaç ile intihar girişimi yüksek bir mortaliteye sahiptir. Kolşisin zehirlenmesi hasta için kritik ve hayatı tehdit edici olduğundan doktorlar, bu ilacın komplikasyonlarını ve aşırı doz alımında ortaya çıkacak etkilerin farkında olmalıdır. Burada, intihar girişimi ile yüksek doz kolşisin alan bir olguyu sunmayı amaçladık

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## INTRODUCTION

Colchicine is a well-known alkaloid drug, that is used for the treatment of familial Mediterranean Fever, acute gout arthritis, amyloidosis and primary biliary cirrhosis (1, 2). Colchicine has a narrow therapeutic index and reported mortality with this drug is uncommon but > 0.8 mg/kg drug ingestion is generally known as lethal (2). Diarrhea, sickness, vomiting, abdominal pain, excessive deficiency of electrolytes and fluid are common symptoms of colchicine intoxication (2). Bone marrow suppression, cardiovascular collapse, pulmonary edema, acute respiratory distress, acute kidney failure, rhabdomyolysis, metabolic acidosis, altered mental status, seizures and multiple organ failure can be seen serious poisoning cases (3) Herein, we reported a colchicine intoxication case that progressing with serious poisoning findings.

## CASE

A 28-year-old male patient was admitted to emergency department with the complaints of abdominal pain, diarrhea and vomiting after taking 65 mg colchicine (0.81 mg/kg; patient weight 80 kg, 130 tablets of 0.5 mg) and the combination of paracetamol (3200 mg), pseudoephedrine (300 mg) and chlorpheniramine maleate (20 mg) for suicide attempt about 20 hours ago. On physical examination he was conscious, responsive and cooperative; there was diffuse abdominal tenderness on palpation. The vital signs at the admission are as follow: blood pressure 110/70 mmHg, body temperature 36.7°C, respiratory rate 22 breaths/minute, and heart rate 93 beats/minute. The initial laboratory findings in emergency department were WBC 30.8 (10<sup>3</sup> µL); hemoglobin 19 gr/dL; hematocrit 57.8%; platelet 154,000/mm<sup>3</sup>; AST 502 U/L; ALT 314 U/L; Total-Creatinin Kinase (CK) 691 U/L; CK-MB 66 U/L; INR 1.742; BUN 58 mg/dL; Creatine 1.82 mg/dL; acetaminophen

1.31 mg/dl(normal range). Blood gas values were: Ph 7.231; pCO<sub>2</sub> 40.3 mmHg; HCO<sub>3</sub> 16.3 mmol/L; BE -10.9 mmol/L; lactate 10.5 mmol/L. The patient intubated with propofol due to unconsciousness after eighth hours of admission. Activated charcoal was performed for two times after the admission to hospital. Hemodialysis was performed for four hours and N-acetyl-cisteine intravenous treatment was given for acetaminophen intoxication. Positive inotropic agents were given during hemodialysis. After the hemodialysis, WBC 23.0 (10<sup>3</sup> µL); hemoglobin 16 gr/dL; hematocrit 47.1%; platelet 44,000/mm<sup>3</sup>; AST 348 U/L; ALT 199 U/L; Total-CK 825 U/L; CK-MB 160 U/L; INR was higher then device upper threshold ; BUN 54 mg/dL; Creatine 2.34 mg/dL. Blood gas values were: pH 7.278; pCO<sub>2</sub> 40.6 mmHg; HCO<sub>3</sub> 18.4 mmol/L; BE -7.97mmol/L; lactate 9,6 mmol/L.1000 ml fresh frozen plasma was administered for immeasurable coagulation values after hemodialysis. The patient was thought to have developed multiorgan failure, rhabdomyolysis and lactic acidosis . At 16 hours following hospital admission, cardiac arrest developed and he didn't respond to resuscitation, after 40 minutes he died in resuscitation room.

## DISCUSSION

Colchicine intoxication has three phases. The first phase has symptoms such as nausea, vomiting, diarrhea and abdominal pain and this phase continues less than 24 hours. The second phase has higher mortality and seen at 2-7 th. days of ingestion. In the second phase, multiple organ failure, acute respiratory distress, bone marrow suppression, arrhythmias and cardiovascular collapse can be seen. The third phase called as resolution of organ failure that is seen after 7 days; in this phase recovery can be seen (1,3).

After oral ingestion, colchicine is initially metabolized by the liver and excreted by the kidneys (4).Colchicine binds to tubulin and

blocks the microtubular network (4). As a consequence, damaged protein synthesis, blocked mitosis, reduced cellular activity, reduced exocytosis and endocytosis, disrupted cardiac myocyte contractility comprise due to effected cells metabolism (4). These mechanism results in multiple organ dysfunction (4). Acute cardiac failure, cardiac dysrhythmias, hematologic complications and shock are prevalent causes of mortality in colchicine toxicity (5).

Early diagnosis and treatment methods, decontamination, supportive care constitute of poisoning case management (3,4). Additionally, granulocyte colony-stimulating factor and colchicine Fab fragment antibodies can be beneficial for supportive care(4,6) It is recommended that extracorporeal life support(ECLS) for toxin-related cardiogenic shock with responseless to medical treatment(6).

Brvar et al. reported a 76-year-old-man who had an alcoholic liver disease and renal insufficiency ingested mistakenly Colchicum autumnale about 0.14 mg/kg-0.82 mg/kg. In this patient death in the third day despite of aggressive treatment regimen such as gastric lavage, activated charcoal, sodium bicarbonate, hydration and inotropic agents(7).

Brncić et. al reported that patient was admitted to hospital respiratory distress, lethary and circulatory compromise. For the treatment fluid, bicarbonate, inotropic agents and fresh frozen plasma were administered despite this the patient died after 16 hours(8).

The patient admitted to our emergency department after 20 hours ingestion 65 mg or 0.81mg/kg colchicine and common cold medication paracetamol(3200 mg)-pseudoephedrine(300 mg)-chlorpheniramine maleate(20 mg) and he had severe gastrointestinal symptoms at the admission. Hemodialysis and inotropic agent couldn't prevent death of him. We think that this case

report make a major contribution about lethal colchicine intoxication.

We administered gastric lavage, fluid, activated charcoal, inotropic agents, hemodialysis and N-acetyl-cysteine for all that the patient died after 16 hours admission to emergency department.

## CONCLUSION

Colchicine intoxication is a critical and life-threatening condition for patients so that physicians should be aware of over dose and complications of this drug. The drug receipt time-amount and admission time to hospital are significant for the treatment. Despite the aggressive treatment regimen, patient can die due to multiorgan failure, DIC, rhabdomyolysis and acidosis. Rapid diagnosis and treatment can prevent death.

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