

# Anaphylaxis After the First Dose of Lansoprazole: A Case Report

## *İlk Doz Lansoprazol Kullanımı Sonrası Gelişen Anafilaksi: Olgu Sunumu*

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### Abstract

Drug-induced anaphylaxis is a life-threatening condition that is rapid in onset and defined as a serious allergic or hypersensitivity reaction. Proton pump inhibitors are widely used for the treatment of acid-related disorders. These drugs are known as effective, safe and well tolerated. Although these drugs are known to be safe they may lead to life-threatening side effects such as anaphylaxis and interstitial lung disease in addition to minor side effects such as abdominal pain, headache, nausea, vomiting and diarrhea. A small number of anaphylactic reactions to lansoprazole have been described, although it is a commonly prescribed drug. We describe a case of anaphylaxis induced by oral intake of lansoprazole.

### Keywords

Anaphylaxis, lansoprazole, proton pump inhibitors, drug allergy

### Anahtar Kelimeler

Anafilaksi, lansoprazol, proton pompa inhibitörleri, ilaç allerjisi

Received/Geliş Tarihi : 20.11.2015

Accepted/Kabul Tarihi : 04.12.2015

doi:10.4274/meandros.galenos.2018.2550

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### Öz

İlaçla indüklenen anafilaksi ciddi allerjik veya hipersensitif reaksiyon olarak tanımlanan, hızlı başlangıçlı olabilen ve hayatı tehdit eden bir durumdur. Proton pompa inhibitörleri mide asit salınımıyla ilişkili birçok hastalıkta gastrik asit sekresyonunu azaltıcı etkileri nedeniyle sıklıkla kullanılan ilaçlardır. Bu ilaçlar etkin, güvenli ve iyi tolere edilen ilaçlar olarak bilinmekle beraber karın ağrısı, baş ağrısı, bulantı, kusma ve ishal gibi hafif yan etkilerin yanında anafilaksi ve interstisyel akciğer hastalığı gibi hayatı tehdit eden ciddi yan etkilere de neden olabilir. Proton pompa inhibitörlerinden biri olan lansoprazol çok sık reçete edilmesine rağmen, lansoprazol kullanımına bağlı anafilaksi çok az sayıda rapor edilmiştir. Burada oral lansoprazol alımı sonrası oluşan bir anafilaksi olgusu takdim edilmiştir.

### Introduction

Anaphylaxis is a life-threatening disorder caused by the release of immunoglobulin E (IgE) in response to allergen substances. IgE sticks to mast cells in basophils and body tissues. When a person with IgE antibodies to a specific allergen is exposed to that allergen again, these cells become activated and release histamine and tryptase into the bloodstream. The signs and symptoms of anaphylaxis generally begin within minutes to hours after exposure to a trigger, such as a

food, a drug, or an insect sting (1). We describe a case of anaphylaxis induced by oral intake of lansoprazole.

### Case Report

A 24-year-old woman was brought to the emergency room with complaints of generalized itching and flushing, shortness of breath, and weakness. We were informed that the patient had taken 30 mg of oral lansoprazole for the first time 45 min earlier for epigastric heartburn. The patient had no history of allergies or anaphylaxis to any drug. She was monitored, and the following findings were recorded: blood pressure of 70/40 mmHg, pulse rate of 120 beats/min, oxygen saturation of 88%, and respiratory rate of 28 breaths/min. The patient was conscious, cooperative, and oriented but agitated. The physical examination revealed generalized erythema, edema of the periorbital region and uvula, and skin wounds due to scratching. These findings were compatible with anaphylaxis due to the use of lansoprazole. Epinephrine (0.5 mg) was administered intramuscularly, and methylprednisolone (120 mg) was injected intravenously. Oxygen was given at a rate of 5 L/min. The patient was placed in the recumbent position, and intravenous saline infusion was started rapidly to treat the hypotension. Diphenhydramine (45.5 mg) was given intravenously for the itching. Laboratory studies, including a complete blood count and biochemical parameters, were all in the normal ranges. The patient's condition stabilized 2 h after the initiation of the treatment, and the erythema on the body disappeared 6 h later. The itching also subsided, and the edema of the uvula and periorbital area was resolved. The patient was discharged in a stable condition after follow up for 24 h in the emergency room and advised to make an appointment with an allergy unit for immunological research.

### Discussion

Proton pump inhibitors (PPIs), which decrease gastric acid secretion, are widely used for the treatment of acid-related disorders, including Barrett's esophagus, peptic ulcer disease, Zollinger-Ellison syndrome, gastrinomas, and esophagitis/gastritis (2). PPIs reduce basal and stimulated gastric acid secretion by inhibiting the parietal cell enzyme H<sup>+</sup>-K<sup>+</sup>-ATPase. PPIs are prevalent medications owing to their proven

efficacy, safety, and good tolerability, and they are associated with a low incidence of adverse reactions (3). Common adverse effects of PPIs are headache, nausea, vomiting, abdominal pain, diarrhea, itching, and a skin rash. More serious adverse events include glottis edema, anaphylaxis, microscopic colitis, hip fractures, interstitial lung disease, Kounis syndrome, and acute allergic intestinal nephritis (4-10). Candar et al. (11) reported a case of asystole after intake of lansoprazole and stated that the cause of death of the patient was delayed admission to the emergency room. In all the cases reported in the literature, the response to the treatment was better when the time between the intake of the drug and the initiation of treatment was short.

The literature also reports different patterns of cross-reactions between PPIs. Sobretiva Elfau et al. (12) reported the following patterns:

- 1) An allergy to a single PPI and positive cross-reactivity with all other PPIs;
- 2) An allergy to lansoprazole, positive cross-reactivity with rabeprazole, but tolerability of other PPIs or an allergy to omeprazole, positive cross-reactivity with pantoprazole, and tolerability of other PPIs;
- 3) An allergy to omeprazole but tolerability of pantoprazole and lansoprazole (rabeprazole and esomeprazole unknown). The high rate of cross-reactivity between these drugs is closely related to their chemical structure. The pyridine rings of rabeprazole and lansoprazole have a methoxypropoxy and trifluoroethoxy chain, respectively, whereas the pantoprazole and omeprazole benzimidazole rings have a difluoromethoxy and methoxy chain, respectively (13). In the present case, cross-reactivity tests could not be performed in the hospital, but the patient was directed to an allergy unit to undergo these tests after being discharged.

Although anaphylaxis induced by PPIs is rare, patients who are prescribed PPIs should be informed about their potential side effects. Physicians should keep the possibility of PPI induced anaphylaxis in mind because of the frequent use of these drugs without a prescription.

PPI-induced anaphylaxis needs to be quickly diagnosed and treated, as it may progress to anaphylactic shock and death. To avoid the recurrence of a hypersensitivity reaction, cross reactivity studies

should be performed before starting a new PPI when an allergic reaction occurs in response to any PPI.

#### Ethics

**Informed Consent:** We received informed consent from the patient.

**Peer-review:** Internally peer-reviewed.

#### Authorship Contributions

Concept: İ.E., Y.K., S.A.D., A.D., Design: İ.E., Y.K., Data Collection or Processing: İ.E., S.A.D., A.D., Analysis or Interpretation: İ.E., Y.K., S.A.D.,

Literature Search: İ.E., Y.K., S.A.D., A.D., Writing: İ.E., Y.K.

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

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

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