

Allergy to lansoprazole: study of cross-reactivity among proton-pump inhibitors

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Keywords: allergy; lansoprazole; proton-pump inhibitors.

Lansoprazole is a substituted benzimidazole used in the treatment of peptic ulcer disease and gastroesophageal reflux disease. The capsules contain the active ingredient in the form of enteric-coated granules. A few cases of hypersensitivity to lansoprazole have been reported (1, 2).

We report a 42-year-old female referred to our allergy department with an adverse drug reaction to lansoprazole. The patient suffered from dyspepsia and her family physician prescribed continuous treatment with lansoprazole. Thirty minutes after taking the first capsule, she developed generalized cutaneous rash, oedema of the eyelids, sick feeling and abdominal pain. She was treated with intramuscular methylprednisolone and antihistamines. The reaction was completely resolved in 48 h.

Skin tests with lansoprazole and the whole proton-pump inhibitors (PPI) group were performed according to general considerations for drug allergy diagnosis (3, 4). Skin-prick test (SPT) and intradermal tests with ten-fold dilutions of lansoprazole at 30 mg/ml were carried out. We observed an immediate positive reaction to SPT (4 × 3 mm wheal). Intradermal tests at 1/1000 and 1/100 w/v also gave immediate positive reactions

Slight cross-reactivity among proton pump inhibitors in a case of IgE mediated lansoprazole allergy.

Table 1. Allergologic study with proton-pump inhibitors

	SPT	IDT				SBPCDC
		1/1000 w/v	1/100 w/v	1/10 w/v	1/1 w/v	
Lansoprazole caps (30 mg/ml)	4 × 3	12 × 9	10 × 9	NP	NP	NP
Omeprazole i.v. (40 mg/ml)	(–)	(–)	(–)	(–)	(–)	NP
Omeprazole caps 20 mg	NP	NP	NP	NP	NP	(–)
Pantoprazole i.v. (40 mg/ml)	(–)	(–)	(–)	(–)	(–)	NP
Pantoprazole caps 20 mg	NP	NP	NP	NP	NP	(–)
Rabeprazole tablet (20 mg/ml)	(–)	(–)	(–)	10 × 8	NP	NP
Esomeprazole tablet (20 mg/ml)	(–)	(–)	(–)	(–)	(–)	(–)

SPT, skin-prick test; IDT, intradermal test; SBPCDC, single-blind placebo-controlled drug challenge; (–), negative; NP, not performed.

Results expressed in millimetre of wheal.

(12 × 9 and 10 × 9 mm wheal, respectively). Allergologic study with the rest of commercially available PPI are shown in Table 1. Only rabeprazole (20 mg/ml) gave positive results after intradermal test at 1/10 w/v (10 × 8 mm wheal). Skin tests with lansoprazole and rabeprazole were negative in five control subjects. If a negative response in skin tests was observed, a single-blind placebo-controlled drug challenge would follow. Drug provocation test with omeprazole, pantoprazole and esomeprazole showed no adverse reactions.

Only two cases with suspicion of allergy to lansoprazole have been reported (1, 2). No immunologic studies were performed and no specific causal mechanism has yet been identified. Perez Roldan et al. (1) described a case of glottis oedema after taking lansoprazole. Natch et al. (2) described two anaphylactic reactions with omeprazole and lansoprazole in the same patient, suggesting cross-reactivity. Previously, Galindo et al. (5) demonstrated cross-reactivity between omeprazole and lansoprazole by means of skin testing in a case of anaphylaxis to omeprazole.

We report the first case of IgE mediated allergy to lansoprazole based on a close association between the time course of the reaction and the ingestion

of lansoprazole, as well as the positive immediate response in skin tests. Negative responses in control subjects confirm the specificity of these findings. Evidence of cross-reactivity between lansoprazole and rabeprazole was provided by intradermal tests. Cross-reactivity with omeprazole, pantoprazole and esomeprazole were not observed. Previous reports suggest cross-reactivity between lansoprazole and omeprazole (not confirmed by our group), but a complete study with the whole group have not been yet performed. We also describe the first documented sensitization to rabeprazole which suggests, hypersensitivity reactions will probably be observed in the future.

In spite of their chemical near-related structures, we have not found great cross-reactivity among PPI. In patients with hypersensitivity reactions to one of the PPI, the cross-reactivity of the whole group should not be assumed and a complete study should be carried out.

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Anaphylaxis after a horse bite

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Key words: anaphylaxis; bite; horse; lipocalin.

Animal bites, insect bites excluded, are a rare cause of anaphylaxis. Most case reports concern

reactions occurring after bites of rodents (1). The case we report here is the first occurring after a horse

bite. A few minutes after a horse bite over her forearm, a 42-year-old woman developed large local erythema and edema, soon followed by urticaria, rhinitis and wheezing. The wound was superficial and mildly bleeding. After promptly administered epinephrine, chlorpheniramine and methylprednisolone, her clinical conditions improved and she full recovered in 3 h. The patient had a history of seasonal rhinitis

A case of anaphylaxis after a horse bite in a patient sensitized to lipocalins.

and mild intermittent rhinitis when she entered horse-boxes. Skin prick tests confirmed sensitization to horse dander, dog and cat hair, and to grass pollen. Class 3 specific IgE to horse dander (Immulate, DPC, CA, USA) were detected.

Sixteen percent acrylamide/bisacrylamide (37.5:1) SDS/PAGE was prepared by a commercial lyophilized horse dander extract (30 000 NTU/ml, 0.5% w/v, ALK Abellø, Hørsholm, Denmark) and performed under reducing condition (2). Separated proteins were transferred onto nitrocellulose membrane and then incubated with the patient's serum (diluted 1:4) overnight at 4°C. Immunoreaction with rabbit anti-human IgE HRP-conjugated (DakoCytomation, Carpinteria, CA, USA) identified three reactive bands at 65 kDa (horse serum albumin), 25 kDa (Ecu c1) and 18 kDa (Ecu c2), respectively (Fig. 1A) (2–5). A control serum of a patient with allergic rhinitis in relationship to exposure to horse dander (specific IgE Class 2, Immulate, DPC, CA, USA) revealed only one immunoreactive band at 65 kDa. (Fig. 1B).

Equ c1 and Equ c2 are both lipocalins (6), proteins known to be highly concentrated in the saliva of mammals. Lipocalins may be injected directly into the blood stream of a patient through a bite causing severe generalized reactions. Allergy to horse is mainly occu-

pational and is characterized by rhinitis, asthma, and occasionally, by urticaria. Horse dander, horse hair and skin scraping are the usual sources of inhalant allergens causing symptoms in sensitized persons.

The case reported here shows that patients with allergy to horse, even if characterized by mild clinical manifestations, are at risk of anaphylaxis after a horse bite, probably due to lipocalin sensitization.

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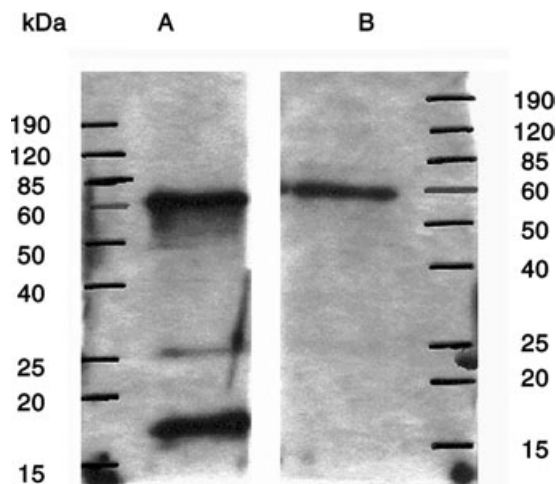


Figure 1. Immunoblotting with rabbit anti-human IgE-HRP of horse dander extract incubated with: (A) serum of the patient with anaphylaxis after a horse bite: three immunoreactive bands are evident at 65, 25 and 18 kDa, respectively; (B) serum of a control patient sensitized to horse dander: one immunoreactive band is evident at 65 kDa.