8. Rodríguez-Trabado A, Cámara-Hijón C, Ramos-Cantariño A, Porcel-Carreño SL, Jiménez-Timón S, Pereira-Navarro G, et al. Basophil activation test for the in vitro diagnosis of non-steroidal anti-inflammatory drug hypersensitivity. Allergy Asthma Proc. 2008;29:241–9.

A. Rodríguez-Trabado[a,*], L.M. Fernández Pereira[b], S. Romero-Chala[b], J.A. García-Trujillo[b], C. Cámara Hijón[b]

[a] *Campo Arañuelo Hospital, Allergy Department, Alcalde Yuste Miron Avenue, 10300, Navalmoral de la Mata, Cáceres, Spain*

[b] *San Pedro de Alcántara Hospital, Immunology Department, Pablo Naranjo Avenue, Cáceres, Spain*

* Corresponding author.
E-mail addresses: trabadoro@yahoo.es (A. Rodríguez-Trabado), 927230289@telefonica.net (L.M. Fernández Pereira), silviachala@hotmail.com (S. Romero-Chala), kkx3@hotmail.com (C. Cámara Hijón).

doi:10.1016/j.aller.2011.09.009

Systemic allergic reaction due to intranasal budesonide

To the Editor,

Topical corticosteroids are frequently recognised as a cause of allergic contact dermatitis but in only few cases the administration of intranasal corticosteroids has been reported as the cause of systemic allergic reaction.[1–6]

A 34-year-old non-atopic woman started treatment with nasal budesonide for a common cold. On the second day of treatment the patient developed, 8 h after the administration of 256 mcg (two puff per nostril each time), lips, nose, and eyelid angioedema and pruritic urticarial papules in face, chest and arms. The symptoms remitted gradually over 3–4 days after treatment with hydroxyzine. Previously the patient had tolerated nasal budesonide without adverse effects.

Prick and intradermal test were performed with a battery of corticosteroids (hydrocortisone, methylprednisolone, budesonide, triamcinolone, deflazacort and dexamethasone) (Table 1) with the excipients carboxymethylcellulose, Tween 80, and benzylalcohol. Prick tests were considered positive when a wheal of more than 3 mm in diameter was present 15 min later. When prick test responses were negative 0.02–0.05 ml of the reagent solution was injected intradermally. Readings were made 20 min after injection. Results were considered positive when wheal and erythema greater than 5 mm were present. Positive control for prick and intradermal tests were done with histamine, at 10 mg/ml and 1 mg/ml respectively. Sterile 0.9% saline was used as a negative control. Ten non-atopic and ten atopic subjects were also tested as a control.

Patch tests conveyed in petrolatum were performed with the same battery of corticosteroids. The patches were placed on normal skin on the patient's back and removed after 2 days. Visual reading was carried out on day 2, day 3, and on day 7. Reactions were scored according to the International Contact Dermatitis Research Group.[7]

Single-blind, placebo-controlled tests with other corticosteroids were performed to evaluate a possible cross-reactivity.

Prick tests with corticosteroids battery and excipients were negative. Intradermal test with budesonide was positive at 48 h and negative with the rest of tested corticosteroids and excipients. In all control subjects, prick and intradermal tests were negative.

Patch tests were positive only with budesonide at 48 h (day 2) showed a +++ reaction and persisted on day 3 (+++) and on day 7 (++).

Single-blind, placebo-controlled challenge tests with intravenous hydrocortisone and deflazacort (oral) were performed with good tolerance.

We report a case of systemic allergic reaction after the administration of intranasal budesonide confirmed by positive results in patch and intradermal test and without cross-reactivity with others corticosteroids. The prevalence of corticosteroid-induced allergic contact dermatitis ranges from 0.2% to 6% according to the different patient series. In only few cases the administration of intranasal corticosteroids has been reported as the cause of hypersensitivity systemic symptoms and as in our case report, budesonide is the most commonly corticosteroid implicated.[8] On the basis of stereochemistry, corticosteroids are classified into five groups: A, B, C, D1, and D2. Substances from the same group are thought to cross-react although this is not universally

Table 1 A, B, C: Groups of the Coopman classification.

Corticosteroids	Prick test	Intradermal test (1/100)	Intradermal test (1/10)
Hydrocortisone (A)	100 mg/ml	1 mg/ml	10 mg/ml
Methylprednisolone (A)	40 mg/ml	0.4 mg/ml	4 mg/ml
Budesonide (B)	0.25 mg/ml	0.0025 mg/ml	0.025 mg/ml
Triamcinolone (B)	40 mg/ml	0.4 mg/ml	4 mg/ml
Dexamethasone (C)	4 mg/ml	0.04 mg/ml	0.4 mg/ml
Deflazacort (B)	30 mg/ml	–	–

accepted.[9,10] In particular, corticosteroids in group B (such as budesonide) have been shown to cross-react not only with members of their own group but also with the corticosteroids in group D.[8–10] Our patient tolerated hydrocortisone (group A) and deflazacort (group B) without problems.

Corticosteroid allergy has very important therapeutic consequences; therefore it is necessary to offer a safe alternative to these patients demonstrating tolerance to other corticosteroids.

References

1. Baeck M, Pilette C, Drieghe J, Goossens A. Allergic contact dermatitis to inhalation corticosteroids. Eur J Dermatol. 2010;20:102–8.
2. Pitsios C, Stefanaki EC, Helbling A. Type IV delayed-type hypersensitivity of the respiratory tract due to budesonide use: report of two cases and a literature review. Prim Care Respir J. 2010;19:185–8.
3. Isaksson M. Systemic contact allergy to corticosteroids revisited. Contact Dermatitis. 2007;57:386–8.
4. Meding B, Dahlberg E. Contact allergy to budesonide in a nasal spray. Contact Dermatitis. 1986;14:253–4.
5. Garcia-Abujeta JL, Fernandez L, Maquiera E. Contact allergy to budesonide in an oral spray. Contact Dermatitis. 1995;32:253.
6. Isaksson M, Bruze M, Hörnblad Y, Svenonius E, Wihl JÅ. Contact allergy to corticosteroids in asthma/rhinitis patients. Contact Dermatitis. 1999;40:327.
7. Wahlberg JE. Patch testing. In: Rycroft RJG, Menné T, Frosch PJ, editors. Textbook of contact dermatitis. 2nd ed. Berlin Heidelberg New York: Springer; 1995. p. 241–68.
8. Venturini M, Lobera T, del Pozo MD, González I, Blasco A. Immediate hypersensitivity to corticosteroids. J Investig Allergol Clin Immunol. 2006;16:51–6.
9. Coopman S, Degreef H, Dooms-Goossens A. Identification of cross-reaction patterns in allergic contact dermatitis from topical corticosteroids. Br J Dermatol. 1989;121:27–34.
10. Wilkinson SM. Corticosteroid cross-reactions: an alternative view. Contact Dermatitis. 2000;2:59–63.

G. Davila-Fernández*, S. Vazquez-Cortés, M. Chamorro-Gómez, A. Elices-Apellániz

Hospital del Henares, Allergy Section, Madrid, Spain

*Corresponding author.
E-mail address: galiciadavila@gmail.com (G. Davila-Fernández).

doi:10.1016/j.aller.2011.08.003

Anaphylaxis to lansoprazole with tolerance to omeprazole

To the Editor,

A 47-year-old woman was admitted to our Allergy Department complaining of allergic reactions with different drugs. She first experienced flushing and angio-oedema upon administration of a radiocontrast agent 10 years ago. Then two years ago she had flushing and pruritus after ingestion of an unknown gastrointestinal drug for dyspepsia, since when she never retook any gastrointestinal drugs. Two months ago she ingested paracetamol and 10 min later she had dizziness, nausea and chest tightness. Three days ago after intake of flurbiprofen in an hour she had dyspnoea and swelling in the lips and she admitted to the emergency department where she was treated properly. She avoided taking drugs for minor complaints to prevent repetition of the reactions. She was admitted to our clinic requesting to identify the safe drugs for her peptic ulcer and migraine. The patient provided informed consent for allergological work-up. The history of the patient was reliable so she was accepted as hypersensitive to paracetamol and flurbiprofen without performing any allergological work-up due to the related anaphylactic reaction reported. She had no history of atopy, skin prick tests with commercial inhalant allergens came out negative. Etodolac and thiocolchicoside were prescribed for her being consulted to the neurology department. Four weeks after the last experience of adverse drug reaction controlled oral challenge tests were performed with etodolac and thiocolchicoside, revealing no adverse reactions.

One month later we planned a controlled challenge test with lansoprazole for her peptic ulcer. The test was planned as administration of one quarter of the dosage (7.5 mg) at first, and three quarters of the dosage (22.5 mg) 1 h later at the first day and the total dose (30 mg) the second day. Two hours after the second challenge dose, 22.5 mg lansoprazole, generalised flushing, urticarial plaques and angio-oedema, nausea and abdominal pain occurred. The patient was treated with intramuscular adrenalin and intravenous methylprednisolone and pheniramine. The symptoms disappeared in 4 h. Omeprazole, another effective antiulcer agent, was the drug of choice for challenge because according to the literature, subjects allergic to lansoprazole tolerate omeprazole.[1] Although the patient had no known previous history of allergy with omeprazole and although omeprazole is well-tolerated by patients allergic to lansoprazole, challenge tests were planned since the risk of cross-reactivity is a well-known feature of PPI allergy. One month after the anaphylactic reaction against lansoprazole observed in the clinic, skin prick test (1/1) and intradermal tests (1/1000, 1/100, 1/10) with omeprazole (40 mg vial) were conducted and were found negative. Oral provocation test with omeprazole was performed and no adverse reaction was observed. Accordingly, the patient was put on etodolac, thiocolchicoside and omeprazole medication and she still continues this treatment safely.

Although allergic reactions with PPIs are rare they are being more commonly encountered due to the growing use of these drugs. The reactions may be severe anaphylactic reactions. Three different patterns concerning cross-reactivity among PPI groups are described: (1) cross-reactivity among