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.

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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

all PPI groups, (2) cross-reactivity between some groups of drugs with tolerance to others (3) no cross-reactivity among PPIs.[2] Porcel et al. note that patients allergic to lansoprazole are cross-reactive against rabeprazole but tolerate omeprazole, pantoprazole and esomeprazole.[1] In our case, although the patient was hypersensitive to lansoprazole she tolerated omeprazole well, denying cross-reactivity between these two drugs with results coincident to those of Lobera and Porcel.[1,3] PPIs are modified benzimidazoles with a pyridine ring, differing by virtue of substitutions on both rings. Omeprazole and pantoprazole have a modified benzimidazole ring which are methoxy and difluoromethoxy chains respectively, however lansoprazole and rabeprazole have no modifications in that ring, instead their pyridine rings contain trifluoroethoxy and methoxypropoxy chains respectively. These similarities in the chemical structures are the possible cause for cross-reactivity between PPIs.[3] In the present case no cross-reactivity between lansoprazole and omeprazole was detected probably due to difference in their chemical structure. Previously skin tests were reported to be reliable to determine the cross-reactivity between different PPIs without performing oral challenge.[4] The allergological workup in the present case also supports this conception, with tolerance to omeprazole revealed both by skin tests and oral challenge. Therefore we emphasize that skin prick tests with PPIs are reliable prior to oral challenge in means of predicting tolerance.

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doi:10.1016/j.aller.2011.09.006