

stressed the diagnostic value of ultrasonography (3–5). Indeed, in some patients with recurrent abdominal complaints and without known HAE, it was the ultrasonographic finding of ascites that led to complement measurements, allowing the correct diagnosis of HAE (5).

Acute pancreatitis may also occur during an HAE attack and may cause ascites. However, in our patient, serum and urinary amylase levels and pancreatic imaging (ultrasonography and CT scan) were normal. Our patient also had slight and reversible increases of serum liver transaminases during the HAE attack, a feature which has already been described (3).

We stress that HAE should always be present in the differential diagnosis of unexplained recurrent abdominal pain, in order to avoid unnecessary laparotomy. The presence of ascites in these patients, even if the peritoneal fluid is an exudate, makes the diagnosis of HAE more likely and should not confuse the clinician.

Key words: C1 inhibitor; hereditary angioedema; lactic dehydrogenase.

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Loratadine reduces the expression of ICAM-1

THE adhesion molecule ICAM-1 is the natural ligand of the integrin LFA-1 (CD11a CD18-Mac 1), which is expressed on leukocytes. Thus, we

can explain, at least in part, the mucosal infiltration by inflammatory cells during the allergic reaction (1). Loratadine is a new-generation antihistamine and exerts antiallergic effects, including the modulation of ICAM-1 expression on nasal epithelial cells of rhinitics during the pollen season (2). We aimed to confirm this report by evaluating the inhibiting effects of loratadine on conjunctival ICAM-1 expression upon the allergen challenge.

The study was a randomized, double-blind, two-arm, parallel-group design, comparing loratadine with placebo. The treatment period was 1 week. Twenty symptom-free subjects (seven women, and 13 men aged 18–50 years), with a previously documented diagnosis of allergic rhinoconjunctivitis to *Parietaria judaica*, and without ocular or nasal nonallergic diseases, were randomized. The study was performed outside the pollen season. No topical or systemic drugs were allowed for 1 month before and during the study period. All subjects gave their informed consent and the trial was approved by our department's ethical committee.

Allergen-specific conjunctival challenge (ASCC) was performed as previously described (1). Clinical conjunctival evaluation was performed at baseline and 30 min after challenge. Conjunctival hyperemia, lacrimation, itching-burning, and swelling of eyelids were scored on an arbitrary four-point scale, from 0 to 3 (0=absent, 1=mild, 2=moderate, 3=severe), and a total symptom score was calculated as the sum of individual symptom scores (1).

A sensitive immunoenzymatic alkaline phosphatase–monoclonal antialkaline phosphatase-complex procedure was employed to detect ICAM-1 expression on conjunctival epithelium (1). Details of the procedure have been reported elsewhere (1).

Results are reported as medians with ranges and as percentage frequencies. Differences were considered significant for *P* values less than 0.05 with a two-tailed test. All statistical calculations were done with the rank and GLM procedures of the SAS system.

All subjects showed an immediate clinical reaction within 5 min after challenge, at concentrations ranging from 50 to 600 AUR/ml. All subjects showed a remarkable ICAM-1 expression on conjunctival epithelial cells compared to baseline and the contralateral eye. Total symptom

Loratadine can modulate the ICAM-1 expression on conjunctival epithelial cells induced by allergen-specific challenge.

Table 1. Results of statistical analysis

Variables	Placebo						Loratadine						Treatment comparison
	Visit 1			Visit 2			Visit 1			Visit 2			
	Median	Minimum	Maximum	Median	Minimum	Maximum	Median	Minimum	Maximum	Median	Minimum	Maximum	
Conjunctival hyperemia	3	3	3	3	3	3	3	2	3	1	1	1	<i>P</i> <0.0001
Lacrimation	3	2	3	2.5	2	3	2.5	2	3	0	0	2	<i>P</i> <0.005
Itching-burning	2.5	2	3	2	2	3	3	2	3	1	0	1	<i>P</i> <0.0003
CD54 (ICAM-1) expression	2	1	3	2	1	3	2	2	3	1	0	2	<i>P</i> <0.0001

Results are reported with four-point scale for symptoms and five-point scale for ICAM-1.

scores were significantly less severe in the loratadine-treated group than the placebo-treated group. ICAM-1 expression on the conjunctival epithelium was significantly reduced during the EPR. Placebo treatment did not affect either EPR clinical or inflammatory events induced by the ASCC. Table 1 reports the analysis of the considered variables.

The present results confirm the previous evidence at nasal level (2) and show that loratadine reduced both symptoms and ICAM-1 expression at the conjunctival level. Thus, epithelial cells became less susceptible to infiltration by inflammatory cells.

The mechanism by which loratadine induces ICAM-1 downregulation is probably additional to the antihistaminic one. On the basis of the present data, it is possible to demonstrate that loratadine exerts an antiallergic effect, modulating ICAM-1 expression on conjunctival epithelial cells. ICAM-1 downregulation should be regarded as an additional property of antihistamines, a sort of protective effect on the epithelium against the damaging effect of inflammatory cells, such as eosinophils.

Key words: allergen challenge; conjunctivae; epithelia; ICAM-1; loratadine.

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