

Non-steroidal treatment of pollen-induced conjunctivitis: comparison of different pharmacological protocols

G. CIPRANDI¹, P. M. CERQUETI², S. SACCA, G. CIURLO², M. A. TOSCA¹
& G. W. CANONICA¹

¹Allergy Service, Department of Internal Medicine and ² ENT Department R, University of Genoa, Italy

Pharmacological treatment of allergic conjunctivitis may be based on the therapeutic use of topical steroids; however, because of the side effects, steroids are not clinically suitable in either prolonged treatment, or pollinosis. Because non-steroidal topical drugs are suitable in prolonged treatment, this single-blind study evaluated the following topical drugs: cromoglycate plus chlorphenamine, cromoglycate plus tetrazolin and imidazolin plus nafazolin, compared with placebo. The results confirm significant clinical efficacy of these drugs on signs and symptoms compared with placebo. Thus, "non-steroidal" topical drugs should be the preferred choice in prolonged forms of pollen-induced (e.g. *Parietaria* and/or grasses) conjunctivitis.

Key words: antihistamines; cromoglycate; imidazoline derivatives; non-steroidal topical drugs; pollen-induced conjunctivitis.

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Allergic conjunctivitis is a frequent manifestation of ocular IgE-mediated hypersensitivity; conjunctival mucosa is particularly exposed to the environment, being the site of interaction between allergens and local immunocompetent cells (8).

From a nosological viewpoint, according to the period of clinical manifestation, we distinguished two main forms: seasonal, typical of pollinosis; and perennial, caused by various allergens (e.g. *Dermatophagoides*, products of animal epidermidis, moulds, etc.)(6).

The diagnosis is relatively simple: it is based on a careful history, on ophthalmological examination and, especially, on causal assessment of specific, seric and cutaneous IgE (6). Knowledge of the pathophysiological mechanisms is fundamental to a rational and correct choice of therapeutic strategy, i.e. employing drugs that can prevent and/or block the allergic inflammation.

Mediators of conjunctival allergic inflammation are preformed (histamine, serotonin, chemotactic factors of delayed reaction, kinins), or neoformed (leukotrienes, prostaglandins, prostacyclins, platelet-activating factor). The pharmacological treatment of allergic conjunctivitis consists of topical drugs, single or associated, characterized by their different activities: anti-inflammatory (steroids and non-steroid anti-inflammatory drugs, NSAID), preventive (cromoglycate), antihistaminic (anti-H₁ receptor antagonists) and decongestive (imidazolin derivatives) drugs (1, 4, 5).

Topical steroids are commonly employed in the acute phase of allergic conjunctivitis, because of their rapid efficacy. However, owing to their well-known side effects, steroids are not suitable in either prolonged treatment or pollinosis; in our area the pollination season is very protracted (e.g. *Parietaria*). For this reason, in the treatment of

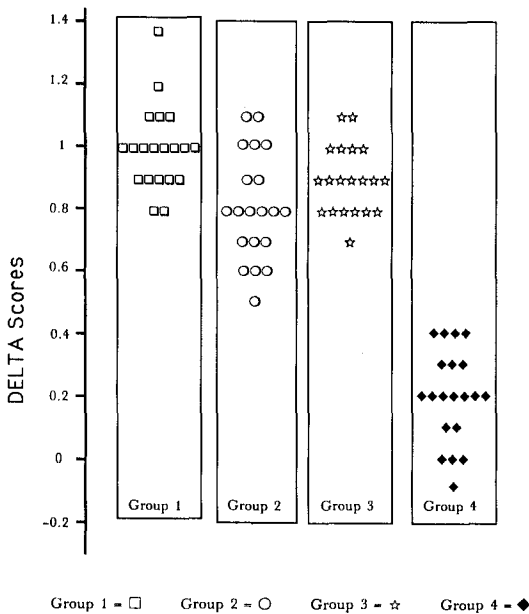


Fig. 1. Delta scores (before/after 2 weeks). Eye signs and symptoms

pollen-induced conjunctivitis non-steroidal drugs are preferable.

The present work was designed to evaluate the therapeutic efficacy of the main pharmacological non-steroidal protocols in pollen-induced conjunctivitis.

PATIENTS AND METHODS

Our study comprised 80 patients (28 men and 52 women), age 18 to 60 years (mean 37 years) with allergic conjunctivitis from pollinosis, and were without other disease. They had attended the Allergy Service (Department of Internal Medicine) and the Clinica Oculistica of the University of Genoa, during the spring of 1990, and had given their informed consent. Diagnosis was based on history, ophthalmological examination, skin prick test and RAST. All patients had at least a 2-year history of allergic conjunctivitis during the pollen season. All subjects were living in the Genoa area, and the allergens were *Parietaria* and/or grasses.

The study was single-blind, randomized, placebo-controlled, performed on four groups to

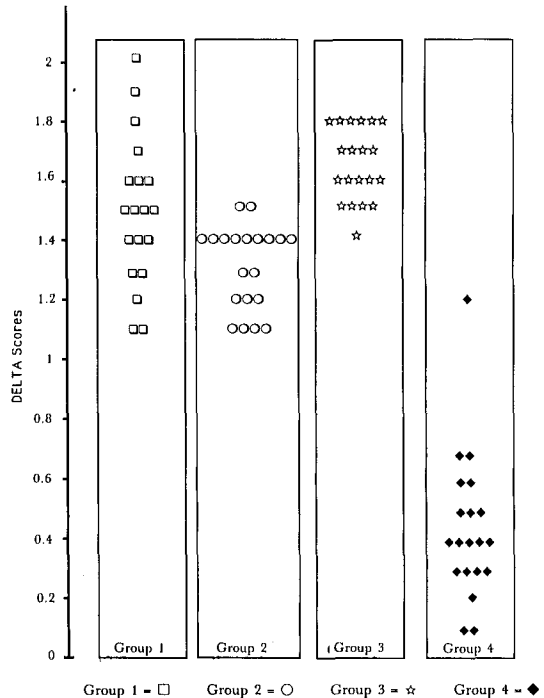


Fig. 2. Delta scores (before/after 4 weeks). Eye signs and symptoms.

which the patients were randomly allocated (20 in each), and a different pharmacological protocol was studied single blind in each group. All drugs had been suspended for 2 weeks prior to the study.

Topical drugs given were two drops (one in each eye) q.i.d. for 4 weeks. Group 1 received 4 % cromoglycate plus chlorphenamine (anti-H₁ antihistamine) in 0.2 % solution, Group 2 4 % cromoglycate plus tetrizoline (decongestive-imidazoline derivate) in 5 % solution, Group 3 0.1 % nafazoline (anti-H₁ antihistamine) plus imidazoline (decongestive) in 0.1 % solution, and Group 4 placebo.

At the beginning of the study and after 2 and 4 weeks treatment all subjects were submitted to ophthalmological control for evaluation of the following signs and symptoms: photophobia, lacrimation, itching, sensation of foreign body, hyperaemia, conjunctival and palpebral chemosis. An arbitrary score was given from 0 to 3 (0 = absent, 1 = slight, 2 = moderate, 3 = severe).

The data obtained were analysed by a non-parametric test, evaluating Delta scores after 2 and 4 weeks intragroup and intergroup, using the Mann-Whitney U test.

RESULTS

All patients completed the study. After verifying the homogeneity of basal scores, all groups (placebo included) showed a unidirectional trend of a statistically significant reduction in scores ($P < 0.01$ Wilcoxon's test) after 4 weeks.

Analysis of Delta scores after 2 and 4 weeks intragroup and intergroup shows that the score reductions after 2 and 4 weeks in Groups 1, 2 and 3 were significantly higher than in Group 4 ($P < 0.01$ U test Mann-Whitney) (Figs. 1, 2). No side effects were reported.

DISCUSSION

Pharmacological treatment of allergic conjunctivitis is frequently based on anti-inflammatory drugs, topical steroids, because of their rapid efficacy in the acute phase. However, owing to their well-known side effects, steroids are not suitable in disorders requiring prolonged treatment, such as pollen-induced conjunctivitis, especially in a region such as ours where the season is very protracted.

Therefore, we evaluated the clinical efficacy of three non-steroidal drugs in the treatment of pollen-induced conjunctivitis. The results for all three demonstrated comparable clinical efficacy, confirming previous studies (2, 3, 4, 7).

In conclusion, cromoglycate (preventive) associated with chlorphenamine (antihistamine) or tetrizoline (decongestive), as well as the association of nafazoline (antihistamine) plus imidazoline (decongestive), present effective treatments for allergic seasonal conjunctivitis, without side effects.

REFERENCES

1. Abelson MB, Allonsmith MR, Friedlaender MH. Effects of topically applied ocular decongestant and antihistamine. *Am J Ophthalmol* 90, 254-260, 1980.
2. Babel J. Action of 2- (1-naphthylmethyl) imidazoline hydrochloride in the eye. *Schweiz Med Wochenschr* 71, 561-565, 1941.
3. Burquin JB. A new synthetic antihistamine substance and its use in ophthalmology. *Schweiz Med Wochenschr* 76, 296-299, 1947.
4. Cerqueti PM, Ciprandi G. Sperimentazione dell'associazione disodiocromoglicato - clorfenamina nel trattamento della congiuntivite allergica. *Boll Oculist* 11, 12-16, 1985.
5. Cerqueti PM, Sacca' SC, Preste A, Ciprandi G. Valutazione dell'efficacia del piroxicam collirio nelle congiuntiviti allergiche. *Boll Oculist* 14, 51-57, 1987.
6. Friedlaender MH, Okumoto M, Kelley J. Diagnosis of allergic conjunctivitis. *Arch Ophthalmol* 102, 1198-1205, 1984.
7. Greenbaum J, Ceckcroft D, Hargreave FE, Dolovich J. Sodium cromoglycate in ragweed-allergic conjunctivitis. *J Allergy Clin Immunol* 59, 437-443, 1977.
8. Stegman R, Miller D. A human model of allergic conjunctivitis. *Arch Ophthalmol* 93, 1354-1361, 1975.

Address:

Giorgio Ciprandi, M.D.
Allergy Center - D.I.M.I.
University of Genoa
V.le Benedetto XV, 6
16132 Genova
Italy

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