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Research Article

USE OF OLOPAN (OLOPATADIN 0.1%) IN ALLERGIC OPTHALMOPATHOLOGY

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ABSTRACT

A statistical summary of epidemiological studies conducted by the World Health Organization (WHO) over the past 10 years has noted a global increase in the incidence of allergic diseases [1,7]. According to an official statement from the World Allergy Organization (WAO), the number of total allergens has now tripled, particularly the incidence of allergic ophthalmopathologies has increased by 25% [2,4].

Immunopathogenetic basis of allergic eye diseases is the activation of histamine receptors (H) and degranulation of mast cells [5,9,12]. The main purpose of this article is to review and analyze the existing scientific literature on olopatadine hydrochloride (Olopan 0.1% eye drop), which is a relatively new topical

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antiallergic drug in ophthalmological practice, as well as to evaluate the effectiveness of Olopan drug by means of clinical research.

According to the results of laboratory experimentations in rabbits, almost all conjunctival allergic symptoms (conjunctival hyperemia, tearing, swelling of the eyelids, redness and chemosis) caused by specific allergens (eg, histamine allergic mediator) were eliminated in a short time. [1,3,6,14]. In this type of animal research or animal experimentation, olopatadine hydrochloride solution has been shown to have both antihistamine and membrane cell stabilizer properties [8, 10,11].

KEYWORDS

Allergic ophthalmopathology, mast cells, olopatadine hydrochloride, Olopan 0.1%, antihistamine property, membrane stabilizer.

INTRODUCTION

In the clinical practice of ophthalmology, antiallergic drugs with different therapeutic efficacy are used in the complex treatment of allergic conjunctivitis. Among them, Olopan (olopatadin 0.1%) has a mechanism of bilateral antiallergic action. The active substance of this drug simultaneously blocks the degranulation of conjunctival mast cells and acts as a selective histamine-1 (H1) receptor antagonist, resulting in a sharp decrease in the development of allergic symptoms of the conjunctiva (itching, hyperemia, lacrimation, swelling and chemosis). Olopan has not only a therapeutic but also a preventive effect, for example, cromoglycates (for example, lecrolin), for example, the active substance in the composition of the drug inhibits the release of inflammatory mediators (cytokines, interleukins, prostaglandins) from mast cells - one of the main properties of the drug [1,13].

The main pharmacokinetic disadvantage of many antihistamines is that they adversely affect the integrity of mast cell membranes and cause cell

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lysis. In this regard, the sequence of adverse effects of antihistamines on the mast ty cell wall was determined by American scientists through randomized trials: desloratadine > clemastine > azelastine = ketotifen > diphenhydramine > epipastin > olopatadine [3,7].

Table 1. Types of allergic conjunctivitis (by factors)

Non-infectious allergosis	Infectious allergosis
Pollinosis	Virus
Spring keratoconjunctivitis	Bacterial
Atopic keratoconjunctivitis	Chlamydial
Medication allergies	Mushroom
Alimentar allergies . Contact allergies : household , chemical , cosmetics and allergies to occupational agents	Parasitic

Therefore, based on the analysis of articles in more than 50 foreign medical journals on the treatment of eye diseases of allergic etiology was established a high efficiency of 0.1 and 0.2% solution of olopatadine among antihistamines. Clinical studies have shown that Olopan eye drops are effective in allergic conjunctivitis, acute and chronic allergic keratoconjunctivitis.

The trade name of the drug is Olopan, the active ingredient is olopatadine hydrochloride 0.1%, the ophthalmic form is eye drops, the manufacturer is Beximso Pharmaceuticals Ltd, Bangladesh. Registered by the Ministry of Health of the Republic of Uzbekistan on 4th April 2016 with registration number DV/X02234/10/16.

The purpose of the research: evaluation of the clinical efficacy of eye drops Olopan, which is containing 0.1% solution of olopatadine.

MATERIAL AND METHODS

To evaluate the pharmacotherapeutic efficacy of Olopan, 70 patients (n = 70) or 140 eyes were under clinical observation:

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- Seasonal allergic conjunctivitis: developed against the background of hay fever or pollinosis (n=25);
- Atopic keratoconjunctivitis (n = 25);
- Contact allergic conjunctivitis: developed against the background of constant wearing of contact lenses (n=20);

The age range of patients ranged from 16 to 62 years, the mean age was 34.8 ± 1.4 years.

Table 2. Distribution of the patients by age and gender.

Patients age	Men 40/57%		Women 30/43%		General	
	Abs	%	Abs	%	Abs	%
< 20	7	17,5	4	13,3	11	15,7
21-30	8	20	10	33,4	18	25,7
31- 40	12	30	7	23,3	19	27
41-50	10	25	7	23,3	17	24,3
51 <	3	7,5	2	6,7	5	7,3
Totall	40	100	30	100	70	100%

The state of clinical symptoms was assessed after 30 minutes, 48 hours, 5 and 10 days. During the research had used general ophthalmological examinations (determination of visual acuity, direct and inderect ophthalmoscopy, biomicroscopy, lateral illumination, fluorescein test). In the dynamics of patients, the following local clinical symptoms were noted: - edema of the conjunctiva and eyelids; - hyperemia of the conjunctiva; - folliculosis of the conjunctiva. Besides that, for a comprehensive assessment of the allergic process in the conjunctiva was developed a conditionally symptomatic scoring scale and clinical results designed based on it. The structure of this scale is as follows:

A- according to the size of swelling on the eyelids' skin:

1 score (mild swelling);

2 scores (moderate swelling extending to the edge of the eyelids);

3 scores (severe swelling and chemosis of the conjunctiva);

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B- according to the rate of injection of the palpebral and bulbar conjunctiva:

1 score (mild hyperemia);

2 scores (moderate hyperemia);

3 scores (diffuse hyperemia)

C- according to the type of conjunctival follicular reaction:

1 score (easy degree)

2 scores (weak)

3 scores (severe expressed)

D- by visual acuity :

1 score (Vis = 0,9-1,0)

2 scores (Vis = 0,8 - 0,9)

3 scores (Vis = 0,6 - 0,8)

At the end of the study, the results were analyzed using special statistical methods.

RESEARCH RESULTS

The complex therapy of the first two groups includes anti-allergic nasal sprays, artificial tears and drugs that stimulate the reparative properties of the corneal epithelium. The third group received only drops of artificial tears and drugs that stimulate the reparative properties of the corneal epithelium.

Table 3. Periods of clinical recovery of patients in all groups (in days, $M \pm m$)

Clinical characters	First group (n = 2 5)	The second group (n = 25)	Third group (n = 20)
Swelling of the eyelids and conjunctiva	5,18 ± 0,35	4,18 ± 0,44	4,71 ± 0,77
Conjunctiva's hyperemia	4,84 ± 0,32	3,64 ± 0,42	5,42 ± 0,39
Conjunctival follicular reaction	6,15± 0,24	4,12± 0,4	6,52 ± 0,36
State of visual acuity	4,12 ± 0,28	4,25 ± 0,38	5,72 ± 0,42

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Healing term	**5,07 ± 0,3**	**4,05 ± 0,41**	**5,60 ± 0,48**

- By patients diagnosed with seasonal allergic conjunctivitis, which developed against the background of hay fever or pollinosis, the average duration of the disease was 5-7 years. This group of patients was recommended a local instillation of 1 drop of Olopan 2-4 times a day (namely, 2 times was received if a weak and 4 times was received if a severe expressed of allergic symptoms). In many patients (n = 18), itching and swelling of the conjunctiva of the eyelids completely stopped within 72 hours, while the follicular reaction of the conjunctiva stopped relatively late, i.e., significantly decreased by the 5th day. Theoretically, patients diagnosed with seasonal allergic conjunctivitis can receive Olopan for 4 months.
- By all patients diagnosed with atopic keratoconjunctivitis, almost all allergic symptoms (itching, hyperemia and swelling of the conjunctiva) disappeared after Olopan instillation, only an uneven regression of lacrimation symptoms was observed. In 8 patients of this group, atopic conjunctivitis developed against the background of a systemic disease (atopic dermatitis), the main complaints of the patients were corneal syndrome and persistent itching of the skin of the eyelids. For local treatment, they were prescribed Olopan instillation 1 drop 3 times a day (duration 10 days), and for general therapy Dexamethasone and antihistamines on the recommendation by dermatologist. In case of allergic conjunctivitis, local instillation therapy has 2 advantages compared to the oral (per os) form: the drug is administered directly to the affected mucous membrane of the eye - while the likelihood of systemic side effects is reduced. In this group of patients, the symptoms of local conjunctival allergy completely disappeared on the 4th day of treatment.
- The main complaints of patients with contact allergic conjunctivitis consisted of (while wearing permanent contact lenses): conjunctival chemosis, discomfort, hyperemia, serous discharge, photophobia and itching. The service life or usage of contact lenses in this group of patients was 2-6 years, while the age category was mainly up to 35

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years. Theoretically, Olopan can be used over the next 3 years by this group patients. Patients were recommended to instill 1 drop of Olopan into the eyes 2 times (within 10 days). Subjective symptoms were significantly reduced until 5-7 days, and the full clinical result was obtained after 2 weeks. For this group of patients, regular use of Olopan was recommended even during the period of recurrence form of allergic conjunctivitis.

CONCLUSION

Based on the results of clinical trials was established a fast and long-term therapeutic efficacy of Olopan in allergic conjunctivitis of various etiologies.

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