

ORIGINAL ARTICLE

Steroid-antibiotic combination versus steroid in the treatment of conjunctivitis

Prashant Shukla

Assistant Professor, Department of Ophthalmology, Gold Field Institute of Medical Sciences & Research, Chainsa, Faridabad, Haryana, India

ABSTRACT:

Background: Conjunctivitis is a common eye condition that accounts for 1% of all primary care visits. The present study was conducted to assess short-term bactericidal potential of a steroid-antibiotic combination versus steroid in the treatment of conjunctivitis. **Materials & Methods:** 72 patients of conjunctivitis of both genders were divided into 2 groups of 32 each. Group I patients were given combination of neomycin sulphate 3500 IU/mL, polymyxin-B sulphate 6000 IU/mL with dexamethasone 0.1% and group II were given 0.1% dexamethasone. Foreign body sensation, lacrimation, photophobia, and itching were assessed. **Results:** Group I had 18 males and 18 females and group II had 15 males and 21 females. There was significant difference in reduction in symptoms in group I and II in relation to itching, photophobia, erythema, conjunctival discharge, bulbar conjunctiva hyperaemia, lacrimation, foreign body sensation from baseline to day 4. The difference was significant ($P < 0.05$). **Conclusion:** The use of a fixed dose combination steroid-antibiotic product was more efficient for bacterial control and therapeutic efficacy in the treatment of conjunctivitis.

Key words: Conjunctivitis, Erythema, eye

Corresponding author: Prashant Shukla, Assistant Professor, Department of Ophthalmology, Gold Field Institute of Medical Sciences & Research, Chainsa, Faridabad, Haryana, India

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INTRODUCTION

Conjunctivitis is a common eye condition that accounts for 1% of all primary care visits. Conjunctivitis can be infectious or non-infectious. Infectious are viral or bacterial and non-infectious are allergic, mechanical, toxic, immune mediated, and neoplastic.¹ Adenoviral conjunctivitis is a major cause of acute infectious conjunctivitis cases among adults. Infections are generally self-limited and do not require antibiotic treatment. There is no approved treatment, but topical corticosteroids may be helpful in alleviating symptoms of adenoviral conjunctivitis and may prevent scarring in severe cases. It carries a significant burden of symptoms and imposes a considerable economic burden.²

Maxitrol is a multiple dose ophthalmic suspension containing neomycin and polymyxin B sulphates and dexamethasone, whereas Maxidex contains dexamethasone alone.³ Neomycin sulphate has a wide antibacterial spectrum primarily against gram-positive organisms, but is often inactive against gram-negative pathogens including *Pseudomonas aeruginosa*. Polymyxin B sulphate is active against *Pseudomonas aeruginosa* and other gram-negative organisms. It has been a consensus that of all the combined therapies, combinations of antibiotics and steroid eye drops is undesirable for more than one reason. Antibiotic

therapy where not indicated has the disadvantage that the patient may develop resistance to the drug and may not respond when antibiotic is urgently needed. The combination of neomycin and polymyxin B is considered to be synergistic.⁴ The present study was conducted to assess short-term bactericidal potential of a steroid-antibiotic combination versus steroid in the treatment of conjunctivitis.

MATERIALS & METHODS

The present study consisted of 72 patients of conjunctivitis of both genders. All were selected in the study after they gave their written consent.

Data such as name, age, gender etc. was recorded. Patients were divided into 2 groups of 34 each. Group I patients were given combination of neomycin sulphate 3500 IU/mL, polymyxin-B sulphate 6000 IU/mL with dexamethasone 0.1% and group II were given 0.1% dexamethasone. In all patients, baseline ocular signs and symptoms were recorded, and bacterial cultures obtained from both eyes. Bacteriological samples were collected from both eyes. Parameters such as foreign body sensation, lacrimation, photophobia, and itching were recorded. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Groups	Group I	Group II
Drug	NS 3500 IU/mL, polymyxin-B S 6000 IU/mL with D 0.1%	0.1% dexamethasone

M:F	18:18	15:21
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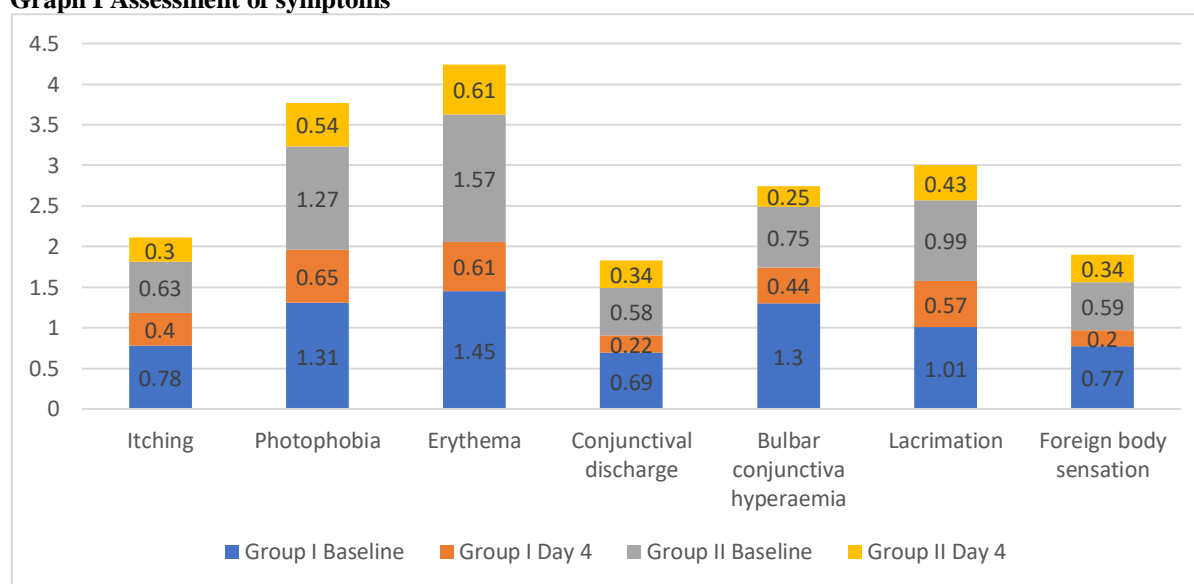
Table I shows that group I had 18 males and 18 females and group II had 15 males and 21 females.

Table II Assessment of symptoms

Symptoms	Group I		Group II		P value
	Baseline	Day 4	Baseline	Day 4	
Itching	0.78	0.40	0.63	0.30	0.01
Photophobia	1.31	0.65	1.27	0.54	
Erythema	1.45	0.61	1.57	0.61	
Conjunctival discharge	0.69	0.22	0.58	0.34	
Bulbar conjunctiva hyperaemia	1.3	0.44	0.75	0.25	
Lacrimation	1.01	0.57	0.99	0.43	
Foreign body sensation	0.77	0.20	0.59	0.34	

Table II, graph I shows that there was significant difference in reduction in symptoms in group I and II in relation to itching, photophobia, erythema, conjunctival discharge, bulbar conjunctiva hyperaemia, lacrimation, foreign body sensation from baseline to day 4. The difference was significant (P< 0.05).

Graph I Assessment of symptoms



DISCUSSION

Acute and chronic superficial ocular inflammation of bacterial origin is a common problem characterized by irritation, itching, and burning of the eyelids. The accompanying presence of dry or greasy scales on the upper and lower lid margins, in addition to alterations of the ocular surface, is a direct consequence of bacterial colonization and the secondary immune mediated phenomena. Chronic cases, especially blepharitis, can persist for periods of years, requiring prolonged therapy.⁵ Mild bacterial conjunctivitis typically resolves spontaneously, but topical antibacterial therapy is generally preferred as it is associated with a shorter infectious period and earlier resolution of clinical signs and symptoms.⁶ Allergic conjunctivitis is typically treated with antihistamines and mast cell stabilizers, but if the symptoms persist, therapy may be supplemented with topical corticosteroids. Corticosteroids are extensively used to treat ocular inflammatory conditions and are among the most prescribed class of drugs in ophthalmology.⁷ The present study was conducted to assess short-term

bactericidal potential of a steroid-antibiotic combination versus steroid in the treatment of conjunctivitis.

We found that group I had 18 males and 18 females and group II had 15 males and 21 females. Treatment of conjunctivitis involves diagnosis of the underlying cause and use of appropriate therapies.⁸ Topical corticosteroids are useful in treating ocular inflammation, but most treatment guidelines recommend steroid use generally in severe cases of conjunctivitis. This is partly due to risks associated with steroid use.⁹ These risks include potential for prolonging adenoviral infections and potentiating/worsening herpes simplex virus infections, increased intraocular pressure, glaucoma, and cataracts. Most of these perceived risks are not, however, supported by high-quality clinical data. They are also associated with long-term steroid uses that are dissimilar to applications for infectious conjunctivitis.¹⁰ Clinical data show that ophthalmic formulations that combine corticosteroids with broad-spectrum anti-infectives could be effective and well

tolerated when used for short-term treatment. Corticosteroids, in combination with anti-infectives, could be a promising treatment option for acute conjunctivitis subject to development of further evidence on their effectiveness and safety in conjunctivitis treatment.¹¹

We observed that there was significant difference in reduction in symptoms in group I and II in relation to itching, photophobia, erythema, conjunctival discharge, bulbar conjunctiva hyperaemia, lacrimation, foreign body sensation from baseline to day 4. Shulman et al¹² compared topical Maxitrol (neomycin sulphate 3500 IU/mL, polymyxin-B sulphate 6000 IU/mL with dexamethasone 0.1%) with those of Maxidex (dexamethasone 0.1% alone) in a 95 patients with bacterial blepharitis or conjunctivitis. The majority of patients (N=80) had chronic blepharitis. Maxitrol treatment resulted in a significantly greater reduction (90%) in bacterial counts and bacterial eradication (50%) compared with Maxidex (34% and 17% respectively). Maxitrol treatment also produced a significantly greater reduction in conjunctival discharge than did Maxidex, while the treatments were equally effective in alleviating other ocular signs and symptoms. It was concluded that use of a fixed dose combination steroid-antibiotic product was more effective for bacterial control and therapeutic efficacy in the treatment of chronic blepharitis and conjunctivitis patients than treatment with steroid alone.

CONCLUSION

Authors found that use of a fixed dose combination steroid-antibiotic product was more efficient for bacterial control and therapeutic efficacy in the treatment of conjunctivitis.

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