

Clinical Effect of Treatment of Xerophthalmia by Artificial Tears and Pranopufen after Glaucoma Surgery

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ABSTRACT. Objective: To observe the clinical effect of treatment of xerophthalmia by artificial tears and pranopufen after glaucoma surgery. **Methods:** Ninety cases of patients with xerophthalmia after glaucoma surgery admitted to our hospital from May 2017 to March 2019 were selected as experimental samples and divided into control group (n=45) and study group (n=45) by single or double number method. The control group was treated with artificial tears while the treatment of the study group was associated with pranopufen on the basis of the former treatment. The clinical effects of the two groups were analyzed and compared. **Results:** The total effective rate of the control group was significantly lower than that of the study group ($P < 0.05$). The tear film rupture time and lacrimal gland secretion test of the two groups after treatment were more than those before treatment, the fluorescein staining score was lower than that before treatment, and the change degree of the study group was better than that of the control group, with statistical difference between the two groups ($P < 0.05$). **Conclusion:** The use of both artificial tears and pranopufen has good therapeutic effect on xerophthalmia after glaucoma surgery, which is conducive to promoting the recovery of tear film function and worthy of further popularization.

Keywords: Glaucoma; Xerophthalmia; Pranopufen; Artificial tears

0. Introduction

Xerophthalmia is also called keratitis xerosis in clinic. It mainly refers to any factor that causes abnormal changes in tear quality, quantity and dynamics, reduces tear film stability and accompanies with the characteristics of ocular surface tissue lesions. It is a general term for various diseases related to eye discomfort. The main

symptoms of the patients are photophobia, redness and swelling, dryness of the eyes. Serious patients even face the danger of blindness. For glaucoma patients undergoing surgical treatment, the operation will damage the eye tissue to a certain extent, and then cause xerophthalmia ^[1]. In the past, artificial tears like sodium hyaluronate eye drops were mainly used for treatment in clinic, but this can only temporarily relieve dry eye symptoms and can not fundamentally end the problem of poor tear film stability. Ninety cases of patients with xerophthalmia after glaucoma surgery admitted to our hospital from May 2017 to March 2019 were selected as experimental samples in this paper. The following reports are made:

1. Data and Methods

1.1 General Data

Ninety cases of patients with xerophthalmia after glaucoma surgery admitted to our hospital from May 2017 to March 2019 were selected as experimental samples and divided into control group (n=45) and study group (n=45) by single or double number method. In the control group, there were 27 male patients and 18 female patients, aged 20-36 (28.5 ± 4.3), with a course of disease of 6-10 (8.3 ± 0.5) days. In the study group, there were 26 male patients and 19 female patients, aged 21-37 (29.3 ± 4.2), with a course of disease of 7-11 (8.4 ± 0.6) days. Comparing the general data of the two groups, there was no statistical difference ($P > 0.05$), which was of comparative value.

1.2 method

The control group was treated with artificial tears, namely sodium hyaluronate eye drops (Chinese medicine quasi-word H20053222, Shandong Bausch Lomb & Freda Pharmaceutical Co., Ltd., drug specifications: chemical medicine, 0.4ml: 1.2mg (0.3%)), four times a day continuously for one month. On the basis of this treatment, the study group was treated associating with pranoprofen (imported drug, trade name: Pranopulin; H20080279, drug specifications: chemical medicine, 5ml: 5mg), four times a day continuously for one month.

1.3 Observation of Indicators and Therapeutic Evaluation

The tear film rupture time, fluorescein staining score and lacrimal gland secretion test results were recorded before treatment and a month after treatment in the two groups, and the clinical efficacy was evaluated. Excellence: clinical symptoms and signs disappeared completely after treatment and lacrimal gland secretion test ranged from 5 mm to 10/5 min; Utility: clinical symptoms and signs improved after treatment and lacrimal gland secretion test was lower than 0.5 mm/5 min; Nullity: clinical symptoms and signs did not change after treatment or the condition continued to worsen. The calculation method of total effective rate was excellence percentage plus utility percentage ^[2].

1.4 Statistical Analysis

All data were input into the statistical software package SPSS22.0 for processing.

Measurement data and counting data were described with ($\bar{x} \pm s$) and (%) respectively and were compared with t test and χ^2 test. If P is lower than 0.05, there was statistical difference between the two groups.

2. Results

2.1 Comparing the clinical effect of the two groups

The total effective rates of the control group and the study group were compared. The total effective rate of control group was lower than that of the research group, with statistical difference ($P < 0.05$), as shown in Table 1.

Table 1 :Contrasts of the clinical effects of the two groups (n (%)).

Group	Excellence	Utility	Nullity	Total Effective Rate
Control group(n=45)	21(46.7)	16(35.6)	8(17.8)	37(82.2)
Study group(n=45)	25(56.8)	19(42.2)	1(2.2)	44(97.8)
Value of χ^2				6.0494
Value of P				0.0139

2.2 comparing the tear film rupture time, fluorescein staining score and lacrimal gland secretion test of the two groups.

There was no statistical difference ($P > 0.05$) in tear film rupture time, fluorescein staining score and lacrimal gland secretion test compared between the two groups before treatment; The tear film rupture time and lacrimal gland secretion test in the study group were more than those in the control group, and the fluorescein staining score was lower than that in the control group, the difference was statistically significant ($P < 0.05$), as shown in Table 2.

Table 2: Comparing the Tear Film Rupture Time, Fluorescein Staining Score, Tear Gland Secretion Test ($\bar{x} \pm s$) of the Two Groups

Group	fluorescein staining score (s)		tear film rupture time (s)		Tear gland secretion test (mm/5min)	
	Before treatment	After treatment	Before treatment	After treatment	Before treatment	After treatment
Control group (n=45)	1.44±1.11	0.94±0.41	6.36±1.26	8.27±1.38	4.76±2.38	5.34±2.77
Study group (n=45)	1.46±1.16	0.47±0.24	6.39±1.13	10.14±2.77	4.80±2.45	6.85±2.58
Value of t	0.0835	6.6364	0.1189	4.0534	0.0785	2.6759
Value of P	0.9336	0.0000	0.9056	0.0001	0.9376	0.0089

3. Discussion

Glaucoma is one of the common diseases in ophthalmology, which can lead to severe visual impairment and affect the physical and mental health and quality of

life of patients. Xerophthalmia after glaucoma surgery can lead to clinical symptoms such as photophobia, burning sensation, dry eyes, foreign matter sensation, itching eyes, red and swollen eyes, hyperemia and so on. If treatment measures are not taken in time, with the continuous development of the disease, keratoconjunctival lesions and blindness will gradually form. Clinical studies verify ^[3]that the occurrence and development of xerophthalmia are closely related to many factors, such as age, sex, environment, inflammation, eye surgery and so on. Artificial tears, mainly sodium hyaluronate eye drops, moisturize the eyeball by forming an artificial physical or chemical protective barrier, which reduces the degree of epithelial damage caused by dry eye. Although it can temporarily relieve and improve dry eye symptoms, it can not fundamentally improve the stability of tear film. There are some limitations in clinical efficacy ^[4]. Pranoprofen has a significant non-selective inhibition effect on the activity of cyclooxygenase, and then inhibit arachidonic acid from producing prostaglandin, serum acid and prostacyclin. It can resist ocular surface inflammation, reduce platelets gathered in conjunctiva, improve microcirculation of eye tissue, and make effective alleviation of clinical symptoms like ocular itching and hyperemia. Its application in eye diseases like ceratitis and epiephysitis has a good effect^[5]. In addition, the analgesic effect of pranoprofen is rather strong. Compared with drugs like aspirin, ibuprofen , its analgesic effect is remarkable. Based on the treatment with sodium hyaluronate eye drops, pranoprofen associated can significantly improve the clinical therapeutic effect of xerophthalmia after glaucoma surgery, improve the comfort and safety of patients, alleviate clinical symptoms, and then effectively improve the quality of life and prognosis of patients.

According to the results of this experiment, the total effective rate of the study group was significantly improved than that of the control group. The tear film rupture time and lacrimal gland secretion test after treatment were more than those of the control group, and the fluorescein staining score was lower than that of the control group. There was a statistical difference between the two groups ($P < 0.05$). Therefore, it is proved that artificial tears and pranoprofen have good therapeutic effect on xerophthalmia after glaucoma surgery, which is conducive to promoting the recovery of tear film function and worthy of further popularization.

References

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