

Analysis on the treatment and prevention of epidemic conjunctivitis in 108 cases

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Abstract: To explore the treatment method and preventive measures on epidemic keratoconjunctivitis. 108 patients with epidemic keratoconjunctivitis who received treatment in our hospital from January, 2015 to September, 2015 were selected. These patients were treated with interferon eye drops, Ganciclovir ophthalmic gel, and alternating eye treatment of tobramycin-dexamethasone eye drops and diclofenac sodium eye drops. Meanwhile, health education was also performed among patients, so as to promote the recovery of the disease as soon as possible and to prevent the spread of the disease. Among the 108 patients, there were 101 patients recovered. 7 patients had cornea remained sub epithelial round hoary haze, including 2 patients with evident cornea remained sub epithelial round hoary haze due to the occurrence of glucocorticoid-induced intraocular pressure and the tobramycin and dexamethasone eye drops were suspended. The clinical cure rate was 91.79%. There was no pathophoresis to health patients among the 108 patients. Active treatment of epidemic keratoconjunctivitis, combined with health education and publicity could increase the clinical cure rate and control the transmit of the disease spread.

Keywords: Conjunctivitis, keratitis, epidemic, treatment, prevention.

INTRODUCTION

Epidemic keratoconjunctivitis (EKC) is a kind of acute conjunctivitis with the characteristics of rapid onset, contagious, easily lead to the outbreak of the epidemic, commonly known as "red eyes". It is more common in clinical work of ophthalmic clinic, which is mainly manifested as acute follicular conjunctivitis, combined with corneal lesions, and swelling and tenderness of the front of the eye (Ge, 2005). The pathogenic pathogens of EKC are adenovirus type 8, 19, 29, 37, with 5-7 days incubation period. During the early onset period, patients present with photophobia, blurred vision, tearing, accompanied by increased secretion and pain. Among these patients, most of the adults are mostly external manifestations. While children may be combined with systemic symptoms, such as otitis media, fever and sore throat (Gu, 2012).

A small number of patients may be associated with systemic symptoms, such as fever, upper respiratory tract symptoms, myalgia, diarrhea. If delay treatment, it may cause corneal damage, which will affect vision, and reduce the quality of life of patients. At present, the specific treatment of ocular adenovirus infection is still in the stage of development. In this study, conventional treatment combined with health education propaganda method were used for the treatment of EKC patients, and achieved good results. Reported as follows.

MATERIALS AND METHODS

General material

108 patients (aged between 9-65 years old) with epidemic keratoconjunctivitis who received treatment in the Ophthalmology department of the First Affiliated Hospital of Zhengzhou University hospital from January, 2015 to September, 2015 were selected. Totally, there were 195 eyes, including 125 eyes in 70 male patients and 70 eyes in 48 female patients. There were 89 patients with disease in both eyes. The consultation time was about 1 to 5 days after the onset. Diagnostic criteria (Hao, 2010). Patients all had obvious irritative symptoms, combined with red eyes, foreign body sensation, itching, water-like secretion, and swelling on lymph node before ears with press pain. The physical signs of patients were upper and lower eyelids swelling in both eyes, eyelid conjunctiva congestion and edema, punctate hemorrhage under the bulbar conjunctiva, and lots of follicle appeared on fornix and palpebral conjunctiva. A small number of patients with conjunctival could seen pseudo membrane, with speckled epithelial impair on cornea. Inclusion criteria: met EKC diagnostic criteria; age between 6-70 years old; consent to the treatment and signed the informed consent form. Exclusion criteria: Patients had received the relevant drug treatment within 72h before treatment; patients without other eye disease causing conjunctival congestion; women during pregnant stage and breast-feed stage; patients with drug hypersensitivity history.

This research was reviewed by the medical research ethics committee of The First Affiliated Hospital of Zhengzhou University and the research content and process was followed the ethical requirements of biomedical research promulgated by the international and national governments, which was agreed to carry out the study.

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Treatment method

All patients were treated with topical medication, and no systemic drug therapy was given. Interferon eye drops were given to inhibit virus replication (four times per day, 1 drop per time); Ganciclovir ophthalmic gel were employed for anti-virus treatment (four times per day) (Acosta *et al.*, 2007); Tobramycin-dexamethasone eye drops were taken to reduce the conjunctival edema, prevent corneal damage and other complications (3 times per day, 1 drop per time, maximum 14 days); Diclofenac sodium eye drops were used to relieve the irritation symptoms of inflammatory factors and improve the symptoms of eye congestion and edema (4 times per day, 1 drop per time).

Health education

1) The path of disease transmission was informed. Patients should frequently wash hands, not touch or rub eyes. Before eye medicine application, both hands should be washed; patients with monocular disease should pay attention to the protection of healthy eyes, and head partial to the diseased eyes while sleep; exchange of drugs, articles and mutual contactation were forbidden; Living utensils are used alone; The infected eye should not be bandaged. 2) Patients should not have excessive activity; Sufficient sleep was ensured; encouraging patients to eat nutritious, non-stimulating and light food, such as fish, egg, fruits and vegetables, in order to enhance patient resistance and promote healing of the conjunctiva.

Observed curative effect

The continuously observation should be performed under slit lamp until the inflammation disappeared entirely. The inflammation disappeared time and complication occurrence time should be recorded at the same time. According to the standard reference for curative effect judgment (Xia *et al.*, 2011): the curative effect was divided into fully recovery judgment standard, excellent judgment standard, noneffective judgment standard. ① Fully recovery judgment standard: all the symptoms and signs disappeared; the eyelid and conjunctival congestion disappeared; no edema; corneal fluorescein staining was negative. ② Excellent judgment standard: Main symptoms and signs disappeared or decreased; the eyelid and conjunctival congestion reduced; corneal fluorescein staining were negative. ③ Noneffective judgment standard: The symptoms and signs were not improved or aggravated and speckled epithelial lesion appeared on the cornea.

STATISTICAL ANALYSIS

Excel 2013 was used for statistical analysis and the count data were expressed as percentage (%).

RESULTS

During the 6 weeks of treatment and observation period, among the 195 eyes of 108 cases, 179 eyes in 99 cases were cured, and the cure rate was 91.76%; 10 eyes in 6 cases had excellent curative effect and the efficiency was 5.13% and the total effective rate was 96.95%; 6 eyes in 3 patients were noneffective, the non-efficiency was 3.08%. During the treatment, 14 eyes in 7 cases turned up speckled corneal epithelial impair, and the incidence rate was 7.18%. Through the continuous treatment, after 4 weeks, the main symptoms and signs disappeared or reduced on 8 eyes in 4 cases, with the eyelid and conjunctival congestion relieved, and corneal fluorescein staining were negative and the corneal sub epithelial hoary haze evidently reduced. Among them, there were only 2 eyes in 1 case remained 1~2 hoary speckled spots on corneal epithelial. 6 eyes in 3 patients had obvious corneal impair and relapsed repeatedly during treatment. Although the symptoms and signs were significantly improved, there were 4 eyes in 2 cases who had turned up corticosteroid hypertension and the incidence rate was 2.05%. After the suspend of the tobramycin and dexamethasone eye drops application, eye pressure returned to normal level. After 6 weeks observation, there were 4 eyes in 2 patients with significant corneal sub epithelial round and gray haze, in which there were 2 eyes in 1 patients with decreased visual acuity.

At the same time, the 108 cases were investigated. Under the detailed health education, there was no health people got infected by the patients, which had achieved a good effect of preventing the spread of the disease.

DISCUSSION

EKC was a common ocular infectious disease, and could occur all the year around. It mainly spread through the direct contact with infected eye secretions or indirectly touch the surface of contaminated object, equipment or solvent, easy to cause large-scale outbreaks (Fernando *et al.*, 2006; Wang *et al.*, 1999). The disease had short incubation period, acute onset and severe symptoms (Paul, 2006), with characteristics of eye irritation symptoms, conjunctival hyperemia and strong infectious. If a large-scale epidemic occurred, it would not only lead to greater social burden and economic losses (Oh *et al.*, 2003), but even lead to inter-country spread of AHC epidemic (Philippe D *et al.*, 2005; Dussart *et al.*, 2005). Because of its self limitation, no serious complications, etc (CDC, 2004), the main symptoms of the disease were tearing, photophobia, eyelid swelling, congestion, edema, ear lymph node tenderness and swelling, foreign body sensation, burning sensation, visual impairment and other symptoms. More severe patients could have pseudo membrane, complicated with corneal impair and later corneal sub epithelial residual opacity (Arya *et al.*, 2009).

Related research reported that the incidence rate of EKC on corneal impair under 5 years old patients was 55% and 80% for 7~75 years old patients. If no timely and effective treatment were taken, most patients would appear corneal opacity after the recovery of inflammation. Therefore, timely and symptomatic treatment should be taken as soon as possible to avoid corneal complications.

Some scholars believed that there was a “self-limitation” in EKC and not require special treatment. While the clinical observation showed that: During the course of 2~4 weeks, patients went to the doctor due to discomfort, which had strong infectivity. This study showed that: In the early stage of the disease, antiviral drugs and antibiotics treatment should be given actively and given glucocorticoid eye drops at the same time, which could significantly reduce the patient’s symptoms, shorten the course of disease, and reduce corneal complications. The deterioration of diseases in local eyes did not turn up in 195 eyes in 108 patients. Only 4 eyes in 2 patients turned up corticosteroid hypertension, and the incidence was 2.05%. After the suspend of tobramycin and dexamethasone eye drops, intraocular pressure returned to normal, and the total effective rate was 96.95%, which had achieved satisfactory treating results.

At the same time, this study also indicated that health education was very important to prevent the spread of epidemic conjunctivitis. These 108 cases did not infect surrounding health people, which had achieved a good effect to prevent the spread of disease. Prevention methods: patients should maintain a good health habits, wash your hands often with soaps and keep dry, avoid rubbing eyes with hands or going to public area. Due to the infectiousness was the strongest in first week after onset, children patients in kindergarten or nursery should stay at home to avoid disease spread-out. Besides, pathogenic virus usually had resistance to the general disinfectant. During the epidemic period, patients shouldn’t go to the public swimming pool and other public or crowd places. In additional, shaking hands with patients, touching the patients used towel, soap, bedding, door handles, tap etc were also forbidden. After the patients recovered, the quilts, towels used by them should be washed and exposed under sunshine completely for further eliminate the infection sources.

CONCLUSION

The results of our studies have indicated that antiviral treatment combined with anti-infective and hormone eye drops is a very effective treatment for the treatment of EKC. Especially in the treatment of early stage, adding

hormone eye drops can not only accelerate the rate of eye inflammation subsided, but also reduce the possibility of residual corneal opacity. In the active treatment at the same time, to carry out health education publicity, which can improve the clinical cure rate, and control the spread of the disease.

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