Effect of anti-bacterials on wound healing after surgery in ophthalmology and drug effect analysis

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Abstract: At present, most hospitals in China have the phenomenon of abuse of antibiotics. Hospitals usually give antibiotics to patients, so as to prevent infection after operation. But the use of a large number of antibiotics can cause the patient to produce antibodies to the antibacterials and reduce the sensitivity of the pathogen to the antimicrobial agents. The author studied the application of antibacterial drugs in ophthalmological surgery and carried out a comparative analysis. The total effective rate of the experimental group was 92.7%, the average healing time was (3.5±0.4) days, the total effective rate of the control group was 44%, the average healing time was (7.8±0.4) days, and the difference between the two groups was statistically significant (P<0.05). The results showed that the effect of antiseptic drugs on wound healing was obvious, and the healing time of the incision could be shortened significantly.

Keywords: Antiseptic drugs, ampicillin, ophthalmology surgery, anti-infection, healing time.

INTRODUCTION

The structure of the eyes is complex and fine, and it is one of the most important organs of the human body. Most eye surgery belongs to clean operation and the incidence of postoperative infection is very low, for example, the incidence of infection after selective intraocular surgery is 0.08% (Sun et al., 2015; Yang et al., 2014). If infection occurs after operation, the onset is fast and dangerous. The treatment effect is generally poor. It may be necessary to remove the eyeball. Therefore, antimicrobial agents play an important role in the anti infection treatment of Ophthalmology (Chen et al., 2011; Abu, 2017; Liu et al., 2017). Rational drug use can maximize the protection of the eyes from damage (Chen, 2012; Paccez et al., 2014; Li et al., 2016). In order to understand the preventive use of anti-bacterials in the perioperative period of Ophthalmology and promote the standardization and rational use of antibiotics, the relevant investigation and analysis were carried out in this paper. After the operation of Ophthalmology, antibiotics are often used to deal with the incision to prevent wound infection. According to the literature, the incidence of ophthalmic diseases is increasing year by year.

The key to the success of drug treatment is the accurate diagnosis of the infectious nature, the isolation of pathogenic bacteria and the determination of drug sensitivity (Fang et al., 2016; Shi et al., 2015). Then the most sensitive antibacterial agents are selected for treatment. Therefore, the selection of antimicrobial agents is very important (Huang et al., 2011). The antimicrobial spectrum of each antibacterials is not the same as that of the indications (Pan et al., 2011). The clinical diagnosis, bacteriological examination and drug sensitivity test can be used as an important reference for the selection of drugs (Dirk, 2014; Sahar et al., 2016). When selecting antibiotics, we must understand the antimicrobial spectrum and antibacterial properties of the drugs used in order to choose effective drugs (Fu et al., 2008; Ostojic et al., 2015). The combination of broad-spectrum antibiotics or antibiotics should be used for the infection of unknown pathogens (Zhong et al., 2017). Some drugs have unique characteristics and are more suitable for use in the ophthalmology (Yuvaraja et al., 2017). For example, the Pseudomonas research for 11 consecutive years showed that the sensitive rate of tobramycin was always above 90% (Liu et al., 2017; Wang et al., 2008; Jiao et al., 2017). Because fluoroquinolones are widely applied in various clinical departments, the resistance rate of main pathogenic bacteria is increasing. This study discusses the influence of antibacterial therapy on wound healing after ophthalmic surgery, and provides theoretical basis for clinical diagnosis and treatment.

MATERIALS AND METHODS

Clinical data
Data was collected From January 2016 to January 2017, a total of 110 patients who received ophthalmic surgery in the hospital were randomly selected for 55 cases as the experimental group (anti infection group), and the remaining 55 patients as the control group (non anti infection group). There was no statistically significant difference in clinical data between the two groups. It was comparable to that in table 1. All patients were approved by ethics committee of Yuncheng central hospital of shanxi province and signed on the informed consent.

Test method
At the same time, the medical records of the preventive use of antibiotics in the perioperative period of
ophthalmology in our hospital were investigated, and the use rate of 2 antibiotics was analyzed. Ophthalmic hospital drugs is relatively simple, mainly with cefazolin, cefuroxime, clindamycin etc. Intravenous injection of 156 cases, including 141 cases, combined with 15 cases. The use of cefazolin was the highest, up to 61.5%. The combination was two, usually in combination with cefuroxime and metronidazole, combined with rate of 7.7%.

In this paper, we used the same surgical method for ophthalmic surgery (Tu et al., 2017). After suturing the incision, the patients in the experimental group were given ampicillin for anti infection treatment, while the control group did not use antibiotics to prevent it. The healing of incision was compared between the two groups (Barbara et al., 2015). The same infrastructure and dietary conditions must be taken for all patients after the operation. These processes need to be operated by the professional and strictly enforced.

STATISTICAL ANALYSIS

SPSS19.0 software is used to analyze the related data. The results were all expressed in X±s, and the count data were statistically treated by X2 test, and the measurement data were statistically treated with t-test. Levene test or F test is used. Counting data is expressed by chi square. The difference of P<0.05 was statistically significant. The patch area changes before and after the treatment were measured by paired sample t test. The difference was statistically significant when the definition of P<0.05 was defined.

RESULTS

Postoperative wound healing
The healing time of the patients in the test group was less than 3day (D) healing in 16 cases. 3 to 7d healed in 17 cases, > 8D healed in 32 cases. The healing time in the experimental group was shorter than that in the control group. There was a significant difference between the two groups (P<0.05), as showed in table 3.

Comparison of two groups of patients
The experimental group total effective rate was 92.7%, the average healing time was (3.5±0.4) d; the control group total effective rate was 44%, the average healing time was (7.8±0.4) d; there was significant difference between two groups (P<0.05) (table 4).

Comparison of the symptoms of the two groups of patients
Two groups of patients had postoperative pain, redness and other infection symptoms, but compared with the control group without using antibiotics to prevent postoperative infection, the infection symptoms of the experimental group were significantly reduced.

DISCUSSION

The incidence of ophthalmic diseases has been over 10% in China, and the incidence is increasing year by year (Fang et al., 2017). Therefore, eye diseases are attracting more and more attention from medical institutions. There are many kinds of ophthalmic diseases (Li et al., 2015; Tural et al., 2015). With the improvement of medical level, more and more treatment methods have been applied. Surgical treatment of ophthalmic diseases is one of the most important methods. For inverted eyelashes, glaucoma, cataract and other diseases, surgical treatment is usually the preferred treatment, and has a very good effect for most eye diseases (Nayir et al., 2015; Tang et al., 2017). After ophthalmic surgery, prone to complications such as wound infection, to prevent infection and complications, antibiotics are often used (Takahashi, 2017), such as ampicillin sodium is a common and very effective antibacterial drugs, usually dissolved in saline, intravenous drip, medication frequency according to a postoperative incision infection.

But the use of antibiotics has also had a negative impact on the use of antibiotics in the eyes of the domestic medical workers (Udagawa et al., 2012). The use of antimicrobial agents should be considered to reduce, because there are some antibiotics abuse in most hospitals, usually give patients injections of antibiotics, with the eyes and the surrounding area of prevention and control of ocular infection after surgery (Vekov et al., 2015), but large doses can cause the patient to produce antibodies to antibiotics and to reduce pathogen drug sensitivity to antibiotics, which makes the disease more difficult to cure, also significantly increase the difficulty of treatment for patients (Sun et al., 2015; Yang et al., 2014). Therefore, the postoperative patients should reduce the use of ampicillin, penicillin, erythromycin and other antibiotics. Support the party that is necessary after the use of antibacterial drugs, mainly because of infection after ophthalmic surgery situation is very common, if not timely treatment, have an extremely bad influence on patients, causing local redness, swelling and pain, some patients and even lead to eye ulcers or blindness (Chen et al., 2011; Abu, 2017). Therefore, it is of great significance to prove the effect of the use of anti-bacterials on the healing of the wound after ophthalmology.

CONCLUSION

When using antibiotics, we must understand the antimicrobial spectrum and antibacterial properties of the drugs used in order to choose effective drugs. The combination of broad-spectrum antibiotics or antibiotics should be used for the infection of unknown pathogens. The purpose of combined use is to play the synergistic effect of antibacterial agents, enhance efficacy, delay or reduce the emergence of drug-resistant bacteria, and
expand the scope of antibacterial activity, reduce the dosage of individual drugs and adverse reactions for acute or severe infections with mixed infection or unknown pathogens. In this study, 110 cases of patients undergoing ophthalmic surgery were mainly caused by inverted eyelashes, cataract and glaucoma. The difference between the two groups was statistically significant (P <0.05), indicating that the use of antibiotics can significantly shorten the healing time of incision.

REFERENCES


