

Comparative Study of Different Therapies in Glaucoma

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Abstract: Objective: To compare the efficacy of trabeculectomy combined with mitomycin C in the treatment of glaucoma and trabeculectomy alone. Methods: This study selected our hospital from March 2017 to December 2017 to come to my hospital ophthalmic treatment of 200 cases of glaucoma patients for the study of the study, and the patients were randomly divided into two groups, one for the control group, and the other observation group, in which the control group had 100 cases, the observation group had 100 cases, the control group received the standard trabecular surgery based on the suprachoroidal conjunctival flap, and the observation group was given small Beam resection combined with mitomycin C wet compress were used to compare the curative effect of the two groups. Results: The proportion of patients with complete success in the observation group was significantly higher than that of the control group. The total success rate of the observation group was significantly higher than that of the control group. The postoperative satisfaction of the observation group was significantly higher than that of the control group. Conclusion: The efficacy of trabeculectomy combined with mitomycin C in the treatment of glaucoma is better than trabeculectomy combined with mitomycin C in the treatment of glaucoma.

1. Introduction

Glaucoma is a group of eye diseases which result in damage to the optic nerve and vision loss. The main risk factors for glaucoma include increased intraocular pressure and ischemia of optic nerve^[1]. Beside, optic nerve damage and pressure damage may also associated with the occurrence and development of glaucoma. Obstruction of any part of the aqueous humor circulation pathway may cause elevated intraocular pressure, and finally lead to pathological changes. Conversely, optic nerve damage may occur with normal pressure, known as normal-tension glaucoma. It is one of the three major blindness diseases that cause blindness in human beings.

After 45 years of age, the total incidence rates were 1% to 2%. According to the etiology, angle and intraocular pressure, it can be divided into three categories: open-angle glaucoma, closed-angle glaucoma and normal-tension glaucoma^[2]. Congenital glaucoma is due to abnormal embryonic development---the variability of congenital corneal structure. Glaucoma is one of the main causes of blindness in Chinese patients^[3].

A lot of experience in clinical treatment has shown that vision loss from glaucoma may be permanent, so the treatment of glaucoma in patients should be given adequate attention. The current clinical treatment of glaucoma still advocates that physical examination likes screening via regular eye check-ups, will help timely diagnosis and give the patient early regular clinical treatment. If a patient who suffers from glaucoma can be found early and accessed reasonable clinical treatment timely, the patient's vision recovery effect may be prolonged. Therefore, glaucoma treatment advocates early treatment.

The modern goals of glaucoma management are to decrease eye pressure, glaucomatous damage and nerve damage, and preserve visual field. The most common conventional surgery performed for glaucoma is the trabeculectomy. However, causes such as obstruction of the filter passage can often lead to the failure of the operation, which affects the visual function and life quality of the patients^[4].

In recent years, the application of mitomycin C in the treatment of glaucoma has been attached

more attention. Mitomycin C is a mitomycin that is used as a chemotherapeutic agent by virtue of its antitumor activity. Mitomycin C is an antimetabolite, which can decompose cell DNA, block DNA replication and inhibit tumor cell division. It is a kind of antitumor antibiotic isolated from *Streptomyces*, which can inhibit the replication of proliferative DNA by destroying the structure and function of it. It is cytotoxic to cells and also works on quiescent cells. In eye surgery, mitomycin C 0.02% is applied topically to prevent scarring and decrease the production of fibroblasts and scar tissue during glaucoma filtering surgery^[6]. Studies have shown that mitomycin C can effectively inhibit the differentiation and proliferation of desmocytes. Therefore, mitomycin C also has a significant effect in the treatment of glaucoma^[7].

This study selected 200 glaucoma patients from March 2017 to December 2017 in our hospital to evaluate the efficacy of trabeculectomy combined with mitomycin C in the treatment of glaucoma.

2. Materials and Methods

2.1 General materials

This study selected 200 cases of glaucoma patients treated with ophthalmology from March 2017 to December 2017 in our hospital. The patients were randomly divided into two groups, one for the control group, and the other was observation group, in which the control group had 100 cases (males 57 cases, females 43 cases, average age 67 ± 2.5), the observation group had 100 cases (males 55 cases, females 45 cases, average age 68 ± 2.3). There was no significant difference in the patients' sex, age and patient's disease types.

2.2 Research methods

The control group received standard trabeculectomy based on the conjunctival flap above the fornix. The observation group, cotton pieces were soaked in the concentration of 0.26 ~ 0.68 mg/mL mitomycin C solution. This cotton piece was applied in the sclera flap and the surrounding for 2 ~ 5 min, for refractory glaucoma with 0.4 g/L, 15 min, for primary glaucoma with 0.2 g/L, 13 min. Then, remove the cotton, the operation area rinsed with saline 200 mL, the next dealing with the control group in the same way. In general one week after surgery patient can be discharged, check once a week, once a month, and followed up for 1 year. In addition, it is important to inform patients that mood swings can significantly affect the intraocular pressure fluctuations. Emotional ups and down the intraocular pressure will increase, the pressure of the eye to increase will aggravate glaucoma, so glaucoma patients should maintain a pleasant mood, optimistic and cheerful. Maintain a good mental state. Life must be regular. For example, don't smoke and drink, go to bed early and get up early. Don't eat spicy food. Don't overeat and other habits. A healthy lifestyle can reduce the incidence of glaucoma and help control the condition of glaucoma patients. In addition, it is suggested that you can drink two cups of "9 wei irises tea", accelerate blood circulation, prevent eye blood stasis, enhance the ability of eyes to resist high intraocular pressure, and persist in drinking to promote the improvement of glaucoma.

2.3 The criteria of curative effect

Evaluation of the curative effect of postoperative patients, the criteria is: intraocular pressure reaches 6-21 MMHG, patients who don't need anti-glaucoma medications after surgery, can be judged as completely successful operation, intraocular pressure reaches 6-21 MMHG, patients requiring topical anti-glaucoma medications after surgery, or patients with postoperative blindness, can be judged as the partial success of operation, postoperative intraocular pressure to achieve > 21 MMHG, can also be judged as the partial success of operation. For patients who require further surgery to treat glaucoma after operation, or who have long-term low intraocular pressure (< 6 MMHG), or severe postoperative complications, or who have had loss of vision, can be judged as operation failure.

2.4 Statistical methods

The statistical method was SPSS11.0 statistical software, counting data was compared with X^2 test, and the measurement data was compared with t test. P values <0.05 were considered to be Significant differences.

3. Results

Comparison of the postoperative curative effect between the two groups, in the observation group, the proportion of postoperative patients with complete success was significantly higher than the proportion of postoperative patients in the control group, and the total success rate of patients in the observation group was significantly higher than that in the control group.

Table 1 Comparison of the postoperative curative effect between the two groups

group	n	complete succes	partial success	failure	total success
observation group	100	84	13	3	97
Postoperative 1 week	100	87	7	6	94
Postoperative 3 months	100	72	22	6	94
Postoperative 6 months	100	70	18	12	88
control group	100				
Postoperative 1 week	100	75	17	8	92
Postoperative 3 months	100	52	20	28	72
Postoperative 6 months	100	42	24	34	66
Postoperative 12 months	100	35	25	40	60

3.1 Comparison of intraocular pressure between before and after operation in two groups

Table 2 Comparison of intraocular pressure before and after operation

group	n	preoperative	Postoperative 1 week	Postoperative 3 months	Postoperative 6 months	Postoperative 12 months
observation	100	37.5±2.1	8.2±1.5	15.2±2.5	17.5±2.1	18.5±2.1
control	100	38.5±1.2	8.7±2.1	12.1±2.6	13.5±2.3	15.2±2.2

3.2 Comparison of postoperative complications between the two groups

The incidence of postoperative complications were low in both groups. In the observation group, there were 5 cases with low intraocular pressure occurred at 2 weeks postoperatively, the incidence rate was 5%, The patients with low intraocular pressure recovered gradually after one week. In the control group, there were 4 cases with low intraocular pressure occurred at 2 weeks postoperatively, the incidence rate was 4%, The patients with low intraocular pressure recovered gradually after one week. there was no difference in incidence of lower intraocular pressure between the two groups. The incidence of patients with complications is low, and can be tolerated, there is no patients with corneal injury, severe complications such as malignant glaucoma, in two groups.

3.3 Comparison of the satisfaction of treatment in two groups

As shown in table 3, The results showed that the patients in the observation group were

significantly more satisfied with the treatment than those in the control group.

Table 3

group	very satisfied	satisfied	dissatisfied	total satisfied
observation	78%	15%	7%	93%
control	57%	12%	31%	69%
P				<0.05

4. Discussion

This study is to compare the curative effect of trabeculectomy with mitomycin C and strabeculectomy alone in the treatment of glaucoma, the results show that the fully successful ratio of observation group of patients with postoperative patients is significantly higher than the control group, and the total success rate of observation group was significantly higher than that of control group, and the satisfaction rate of observation group was significantly higher than that of control group. Show that comparing the curative effect of trabeculectomy with mitomycin C and strabeculectomy alone in the treatment of glaucoma, trabeculectomy with mitomycin C has better curative effect for the treatment of glaucoma. This is consistent with previous research results. Hongmei Hu et al in the study, only use trabeculectomy in the control group and use trabeculectomy with mitomycin C in the observation group. The postoperative IOP and visual acuity were compared between the two groups. The results showed that the total effective cases of the observation group are 33, the total effective rate is as high as 94.29%, the total effective cases of the control group are 22, the total effective rate was 62.86%; The postoperative intraocular pressure of the control group patients within 1 year varies degrees of recovery, basic situation in the control group and 22 patients' vision of the observation group patients is improved. Visual acuity is improved in 33 cases in observation group. The comparison of effect of two groups was statistically significant ($P < 0.05$). The incidence of adverse reactions in the control group was 8.57% and in the observation group was 5.71%, the difference was statistically significant ($P < 0.05$). Show that, based on trabeculectomy, the combination therapy of interferon and mitomycin is significant, it is worth ophthalmology clinical promotion. The results of this study are consistent with the results of this study and also show that the efficacy of trabeculectomy combined with mitomycin C in the treatment of glaucoma is significantly better than that of trabeculectomy alone in the treatment of glaucoma.

5. Summary

Trabeculectomy is a commonly used surgical treatment in the therapy of glaucoma. Although trabeculectomy is widely used in the clinical [15], but it still exists some problems. For example, postoperative trabeculectomy often due to filter passage obstruction and any other causes, lead to a failure of the patient's disease treatment, affecting the patient's visual function and quality of life. Therefore, exploring a more advanced treatment of glaucoma in the clinical is an urgent problem to be solved. Recent studies have shown that mitomycin C has a significant effect in the treatment of glaucoma, therefore, mitomycin C is currently used in the clinical treatment of glaucoma.

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