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Original Article

Influence of psychological nursing on negative emotion and sleep quality of glaucoma trabeculectomy patients

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Abstract: Objective: To investigate the influence of psychological nursing on negative emotion and sleep quality of glaucoma trabeculectomy patients. Methods: Ninety glaucoma patients treated in our hospital were obtained as research participants and were randomly divided into the control group (45 cases, adopted eyeball massage) and the observation group (45 cases adopted eyeball massage with psychological nursing). The negative emotions (Hamilton Anxiety and Depression Scale (HAMA, HAMD)), sleep quality (PSQI scale), quality of life (GQOLI-74 scale), vision (national standard visual acuity chart) and complications were compared between the two groups. Results: The scores of HAMA, HAMD and PSQI of patients in both groups decreased when they were discharged from hospital, especially in the observation group (all $P<0.05$). One month and 3 months after operation, BCVA of affected eyes in both groups was significantly higher than that before operation, and that of the control group was higher than that in the observation group (all $P<0.05$). The scores of GQOLI-74 in both groups were increased, and the scores of the control group were higher than those in the observation group (all $P<0.05$). The incidence of complications in the observation group was lower than that in the control group ($P<0.05$). Conclusion: Psychological nursing on the basis of eyeball massage can effectively relieve the bad psychology of glaucoma patients after trabeculectomy, improve their sleep quality and life quality, and have less postoperative complications and good vision recovery.

Keywords: Psychological nursing, trabeculectomy for glaucoma, negative emotion, sleep quality

Introduction

Glaucoma is common in ophthalmology and often occurs in the population over 40 years old. Patients have elevated intraocular pressure, obvious swelling and pain in the eyes, decreased vision, and even permanent blindness in severe cases [1]. Early surgical resection is the main therapy for glaucoma. Trabeculectomy is commonly used at present, but complications such as poor formation of functioning blebs are easy to occur after operation, which will affect the recovery of postoperative vision. Clinical practice has found that eyeball massage can promote the formation of functioning blebs to a certain extent, thus improving the postoperative vision of patients [2]. However, due to the concern about the effect of vision recovery after operation and the influence of stress caused by operation, some patients may have tension, anxiety and other emotions after operation, and even have postoperative depression, which not only affects the recovery of postoperative diseases, but also reduces the postoperative sleep quality of patients [3]. Therefore, it is of great significance to give high-quality nursing care during perioperative period to improve patients' psychological state and prognosis.

Conventional nursing pays more attention to the treatment of the disease and postoperative complications, but pays less attention to the patient's psychology and sleep quality [4]. Studies have shown that proper psychological counseling for patients during perioperative period plays an important role in improving their bad psychology after operation. This study mainly discussed the influence of perioperative psychological nursing on negative emotions and sleep quality of glaucoma trabeculectomy patients [5].

Materials and methods

General information

Altogether 90 glaucoma patients treated in our hospital from October 2018 to April 2020 were

collected for prospective analysis and randomly divided into the control group (45 cases adopted eyeball massage) and the observation group (45 cases adopted eyeball massage supplemented with psychological nursing). The informed consent forms were obtained from family members, and this study was also approved by the Ethics Committee. Inclusion criteria: patients aged 25-75 years; patients underwent elective trabeculectomy for glaucoma; patients with single illed eyes; the best corrected visual acuity (BCVA) was less than 0.4 [6]. Exclusion criteria: those with surgical contraindications or those were unsuitable for surgery; those with choroidal or retinal detachment; those with other serious diseases in urgent need of surgical treatment; those participated in other researchers at the same time.

Methods

Patients in both groups received trabeculectomy for glaucoma, while patients in the control group received eye massage after operation [7]. The nursing care was carried out by professionally trained nurses. The specific operation was as follows. The finger pulp of the nurse's thumb was placed on the eyelid of the affected eye, which was close to the inferior border of the eye socket as much as possible. The lower part of the eye was pressed to make the eye move up slowly, 15-20 times/min, which was paused for 2-3 s and performed 5 times/d in the middle of each time. The patients were instructed to continue to do eye massage for 1-2 months after discharge.

The observation group was supplemented with psychological nursing on the basis of eye massage, and the method and frequency of eye massage were the same as those of the control group. The psychological nursing was as follows [8, 9]. The nursing staff should communicate with the patients once a day, which could be maintained for 10-15 min/time, and the psychological state of the patients was learned through communication, and the causes of the psychological fluctuation of the patients was analyzed, so as to implement targeted psychological counseling for patients. Nurses can also tell patients that emotional excitement, excessive tension and other emotions will affect their sleep quality, and the decline of sleep quality can induce glaucoma recurrence, and inform patients of ways to adjust their emotions, such as listening to soft music or communicating with family members to distract themselves. Nursing staff can tell patients about the cases of successful treatment and better visual recovery, so as to enhance their confidence in overcoming diseases and alleviate their anxiety and tension.

Outcome measures

Main outcome measures: (1) Hamilton Anxiety and Depression Scale (HAMA, HAMD) was used to evaluate patients' psychological state [10, 11]. The evaluation time was before intervention and at discharge. The HAMA score ≥7 indicates that patients might be accompanied by anxiety. The HAMD score of 8-17 indicates that the patients may be accompanied by depressive symptoms. The elevation of HAMD score was correlated to the elevated degree of anxiety and depression. (2) Pittsburgh Sleep Quality Index (PSQI) was used to evaluate sleep quality [12]. The evaluation time was before intervention and at discharge, and the scale involved 7 items such as sleep efficiency and sleep quality, with each item scored 0-3, and sleep quality increased with the decrease of the score. (3) Visual recovery: the changes of BCVA of the affected eyes before operation, one month after operation and three months after operation were detected by national standard visual acuity chart [13].

Secondary outcome measures: (1) Quality of life: Generic Quality of Life Inventory-74 (GQOLI-74) was used to evaluate patients' QOL [14]. The evaluation time was before intervention and 3 months after discharge, with a total score of 76-380. The quality of life improved with the increase of the score. (2) The postoperative complications such as hyphema, corneal epithelial edema and iridocyclitis were compared between the two groups. Total complication rate = number of complications/total number of cases *100%.

Statistical analysis

SPSS 20.0 was used for data statistics, and the counting data were expressed as (n/%) and analyzed using χ^2 test. The measurement data were represented by ($\bar{x} \pm sd$) and analyzed by t test. The independent sample t test was used for comparison between groups, and

Table 1. Baseline data of two groups (n, $\bar{x}$ ± sd)

Index	Observation group (n=45)	Control group (n=45)	χ^2/t	P
Gender (n)			1.601	0.206
Male	20	26		
Female	25	19		
Age (years)	50.5±4.4	51.2±6.3	0.611	0.543
Course of disease (month)	10.44±1.94	10.73±1.27	0.839	0.404
Types of glaucoma (n)			1.132	0.568
Acute angle closure glaucoma	25	20		
Chronic angle closure glaucoma	14	18		
Primary open angle glaucoma	6	7		
BCVA of affected eye	0.26±0.04	0.25±0.05	1.048	0.298
Affected eye (n)			0.714	0.398
Left eye	26	22		
Right eye	19	23		

Note: BCVA: Best corrected visual acuity.

Table 2. HAMA and HAMD scores of two groups before and after intervention ($\bar{x}$ ± sd, point)

Group	HAMA score	HAMD score
Observation group (n=45)		
Before intervention	7.02±0.95	6.54±0.93
At discharge	5.33±1.04*,#	4.98±0.95*,#
Control group (n=45)		
Before intervention	7.10±1.11	6.65±0.79
At discharge	6.60±0.88*	5.79±11.10*

Note: Compared with the group before intervention, *P<0.05; compared with the control group, #P<0.05. HAMA: Hamilton anxiety; HAMD: depression scale.

Table 3. PSQI score of two groups before and after intervention ($\bar{x}$ ± sd, point)

Group	Observation group (n=45)		Control group (n=45)	
	Before intervention	At discharge	Before intervention	At discharge
Sleep efficiency	2.30±0.39	1.33±0.40*,#	2.28±0.34	1.80±0.43*
Sleep quality	2.21±0.44	1.44±0.32*,#	2.18±0.43	1.70±0.32*
Sleep time	1.98±0.33	1.10±0.21*,#	2.02±0.30	1.64±0.22*
Sodium amytal	1.86±0.40	0.94±0.29*,#	1.80±0.34	1.24±0.22*
Sleep latency	1.94±0.22	1.04±0.20*,#	1.90±0.26	1.48±0.21*
Sleep disorders	1.77±0.39	0.76±0.35*,#	1.83±0.22	1.20±0.25*
Daytime function	2.20±0.22	1.14±0.29*,#	2.18±0.30	1.66±0.37*

Note: Compared with the group before intervention, *P<0.05; compared with the control group, #P<0.05. PSQI: Pittsburgh sleep quality index.

the paired t test was used for comparison within groups. The difference was statistically significant with P<0.05.

Results

Baseline data

There was no significant difference in general information between the two groups (P>0.05), as shown in **Table 1**.

Psychological state

Before intervention, there was no significant difference in HAMA and HAMD scores between two groups (P>0.05). HAMA and HAMD scores of patients in both groups decreased when they were discharged from hospital, which were even lower in the observation group (all P< 0.05), as shown in **Table 2**.

Sleep quality (PSQI score)

Before intervention, there was no significant difference in PSQI scores between the two groups (P>0.05). When patients were discharged from hospital, the scores of PSQI in both groups decreased, which were even lower in the observation group (all P<0.05), as shown in **Table 3**.

Visual recovery

Before operation, there was no significant difference in visual acuity between the two groups (P>0.05). One month and 3 months after operation, BCVA of affected eyes in both groups was significantly higher than that before operation, and that in the control group was high-

Table 4. BCVA in two groups at different time before and after operation ($\bar{x} \pm sd$)

Group	Before operation	One month after operation	Three months after operation
Observation group (n=45)	0.26±0.04	0.61±0.10*,#	0.74±0.10*,#
Control group (n=45)	0.25±0.05	0.49±0.12*	0.57±0.13*

Note: Compared with the group before intervention, *P<0.05; compared with the control group, #P<0.05. BCVA: Best corrected visual acuity.

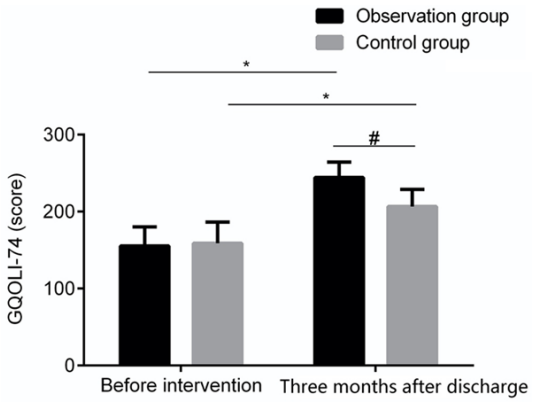

Figure 1. Comparison of GQOLI-74 score between two groups before and after intervention. Compared with the group before intervention, *P<0.05; compared with the control group, #P<0.05. GQOLI-74: Generic quality of life inventory-74.

er than that in the observation group (all P< 0.05), as shown in **Table 4**.

Quality of life (GQOLI-74 score)

Before intervention, the GQOLI-74 scores of the observation group and the control group were (155.47±24.59) and (158.79±27.64), respectively, with no statistical difference (P> 0.05). Three months after discharge, the scores of GQOLI-74 in the two groups were (244.32±19.94) and (206.69±22.28), respectively. Three months after discharge, the GQOLI-74 scores of the two groups were increased and higher in the observation group (all P<0.05), as shown in **Figure 1**.

Complications

The incidence of complications in the observation group was lower than that in the control group (P<0.05), as shown in **Table 5**.

Discussion

Trabeculectomy is the main method to treat glaucoma, but there may be many complications such as hyphema, corneal epithelial edema and poor formation of functioning blebs after operation. Patients are worried about postoperative visual recovery and the influence of postoperative complications, and some patients may have bad psychological feelings such as tension, anxiety and even depression, which may affect the postoperative sleep quality and the postoperative recovery [15].

In this study, the scores of HAMA, HAMD, sleep efficiency, sleep quality and other PSQI in the observation group were lower than those in the control group when patients were discharged from hospital, suggesting that psychological care supplemented with eye massage can more effectively relieve the bad psychology of glaucoma trabeculectomy patients after surgery, and at the same time, the effect of improving the sleep quality after surgery is more obvious. This is because the nursing staff can communicate with patients every day to help understand the psychological state of patients, and at the same time, analyze the causes of psychological fluctuations, so as to give targeted psychological counseling for patients with psychological fluctuations. By telling the patients about the successful cases of previous surgery, it is helpful to enhance their confidence in overcoming the disease. The methods of emotional transfer were introduced to patients, such as playing soft music, which can effectively transfer patients' attention. The implementation of the above comprehensive intervention measures will help to improve patients' anxiety, tension and other unhealthy psychologies after operation [16]. Many studies have shown that bad psychology can affect patients' sleep quality, while the decline of sleep quality can reduce the immune function of the body, thus laying a foundation for the occurrence of various diseases. Therefore, nurses should inform patients of the importance of maintaining good psychology [17, 18]. Scuderi and others also found that perioperative psychological counseling is helpful to improve patients' bad psychology after operation [19]. The team of Guerra also reported that patients' sleep quality is closely related to psychological state, and patients' sleep quality can be improved with the improvement of psychological state [20].

Table 5. Comparison of complications between the two groups (n, %)

Group	Observation group (n=45)	Control group (n=45)
Shallow anterior chamber	0 (0.00)	2 (4.44)
Hyphema	1 (2.22)	2 (4.44)
Poor formation of functional filtering blebs	1 (2.22)	3 (6.67)
Corneal epithelial edema	1 (2.22)	2 (4.44)
Iridocyclitis	0 (0.00)	1 (2.22)
Total incidence	3 (6.67)#	10 (22.22)

Note: Compared with the control group, #P<0.05.

The BCVA of the patients in the observation group was higher than that in the control group one month and three months after operation, suggesting that it is more effective to restore the postoperative vision of glaucoma trabeculectomy patients with eye massage supplemented by psychological care. This is consistent with the research results of the team of Turner [21]. Trabeculectomy for glaucoma is beneficial to the normal circulation of aqueous humor and its smooth flow to the venous system by moving the underdeveloped trabecular meshwork. However, factors such as blood-aqueous barrier, neovascularization and plasma protein leakage can lead to poor formation of functioning blebs after operation, which will affect the recovery of postoperative vision. The eyeball massage gives pressure to the eyeball wall through the fingertips. After the intraocular pressure increases, the aqueous humor enters the filtering bleb through the scleral fistula and flows out through circulation, so that the adhesion of conjunctiva and the edge of scleral flap with the upper sclera tissue can be released, thus promoting the formation of functioning blebs and restoring the patient's vision [22, 23]. In addition, the incidence of complications in the observation group was lower than that in the control group, and the GQOLI-74 score at 3 months after discharge was higher than that in the control group, which suggested that psychological nursing supplemented with eye massage could reduce the risk of complications after trabeculectomy and improve the postoperative quality of life of patients more effectively.

However, this study is single-centered and has limited sample size and short follow-up time. The effects of psychological nursing on visual recovery, psychological state and sleep quality of glaucoma trabeculectomy patients still need to be confirmed by a larger sample of multi-center clinical study.

To sum up, psychological nursing on the basis of eyeball massage can more effectively relieve the bad psychology of glaucoma patients after trabeculectomy, improve their sleep quality and life quality, and have fewer postoperative complications and good vision recovery.

Disclosure of conflict of interest

None.

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