Analysis of the Impact of Nursing Interventions on Treatment Compliance in Children with Congenital Ptosis after Surgery

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Abstract: Objective: This study aimed to explore the impact of nursing interventions on treatment compliance in children with congenital ptosis after surgery. Methods: From April 2021 to April 2022, 82 cases of children who underwent surgery for congenital ptosis at our hospital were divided into an observation group (n = 41) and a control group (n = 41). Both groups received treatment at our hospital and were subjected to different nursing methods post-treatment, with the control group receiving routine nursing interventions and the observation group receiving comprehensive nursing interventions. The treatment compliance, postoperative complications, nursing satisfaction, and quality of life were analyzed and compared between the two groups. Results: The treatment compliance rate was higher in the observation group than in the control group ($P < 0.05$). The total incidence of complications in the control group was higher than that in the observation group ($P < 0.05$). Nursing satisfaction was higher in the observation group than in the control group ($P < 0.05$). After nursing interventions, the quality of life score in the control group was lower than that in the observation group ($P < 0.05$). Conclusion: Applying comprehensive nursing interventions to children with congenital ptosis after surgery can reduce the incidence of complications, improve treatment compliance, and enhance their quality of life. This approach is worthy of promotion.

***Keywords*:** nursing intervention, congenital ptosis, treatment compliance, nursing satisfaction

1. Introduction

Congenital ptosis is a common pediatric ophthalmic disease [1]. The main cause of its occurrence is the loss or dysfunction of the Müller smooth muscle, leading to underdevelopment of the oculomotor nerve and inadequate development of the levator muscle. As a result, the upper eyelid of the affected children cannot reach the normal position when open, affecting their ocular appearance and potentially covering the pupil, which severely impacts visual development. Currently, the primary treatment for this condition is corrective ptosis surgery, which can effectively prevent abnormal eye development and improve the ptosis symptoms. However, due to the young age of the children, poor compliance postoperatively due to factors such as pain can affect their recovery. To enhance treatment efficacy and improve prognosis, effective nursing interventions are implemented postoperatively. This study aims to investigate the impact of nursing interventions on treatment compliance in children with congenital ptosis after surgery. The specific details are as follows.

2. General Information and Methods

2.1 General Information

The study included a total of 82 cases of children who underwent surgery for congenital ptosis at our hospital from April 2021 to April 2022. The grouping was done using a random number table method. The average ages of the two groups of children were compared, and the differences were not significant ($P > 0.05$), as shown in Table 1.

Table 1. Comparison of Basic Information

Group	Number	Age Range (years)	Average Age (years)	Male Patients (cases)	Female Patients (cases)
Control Group	41	2 ~ 10	6.31±1.27	18	23
Observation Group	41	1 ~ 13	6.19±1.08	19	22

2.2 Inclusion and Exclusion Criteria

Inclusion Criteria: (1) Age ≥ 1 year and ≤ 13 years; (2) Informed consent from the family for participation in the study; (3) Clinically diagnosed with congenital ptosis; (4) Meeting the relevant indicators for surgical treatment.

Exclusion Criteria: (1) Participants who withdrew during the study period; (2) Participants with missing clinical data;

(3) Participants with low cooperation.

2.3 Research Methods

Control Group: Routine nursing intervention. Patients received psychological care, health education, were advised not to touch the operated eye postoperatively, and were restricted from excessive outdoor activities for 14 days. They were also instructed to use eye drops regularly and attend scheduled follow-up appointments [2].

Observation Group: Comprehensive nursing intervention. (1) Psychological Intervention: Before the surgery, patients and their families were informed about precautions during surgery, relevant disease knowledge, and obtained full support and trust from the family, addressing any doubts they had. Prior to surgery, emotional support was provided to the patients and their families to enhance treatment compliance [3]. Additionally, active communication with the patients was maintained to establish a strong nurse-patient relationship. (2) Complication Prevention Intervention: Common postoperative complications of ptosis surgery include exposure keratitis, eyelid hematoma, and incomplete closure infection. Nursing staff closely monitored postoperative conditions to prevent complications. Postoperatively, interventions included keeping the cornea moist to protect the conjunctiva and cornea, avoiding eyelashes during eye ointment application to prevent corneal damage, and regular cleaning of eye pads to prevent complications. If eyelash inversion occurs due to swelling after surgery and the cornea is undamaged, immediate removal of the irritating eyelash is necessary. Due to the thin eyelid tissue containing numerous blood vessels and nerve structures, complications such as congestion, pain, and swelling can occur postoperatively. Proper hemostasis and bandaging are crucial to prevent excessive bleeding and hematoma formation. Cold compresses were applied on the first postoperative day to reduce eyelid swelling, and bandages were maintained for more than 24 hours. Prompt replacement of loose bandages was carried out. For mild hematomas, reinforcement of bandages was done. Hematomas typically resolve on their own; for severe cases, hematoma aspiration and bandaging were followed by warm compresses after 3 days [4]. (3) Dietary Intervention: Individualized dietary plans were created based on the patients' actual conditions. Postoperatively, small amounts of warm water were given, and semi-liquid food was introduced gradually if the patient showed no signs of vomiting or coughing. Eventually, transition to a normal diet was made. Diverse food choices with high fiber content, easy digestibility, and high nutritional value were ensured to promote wound healing. Consumption of stimulating and hard foods was prohibited to prevent bleeding or coughing. The patient was advised to be seated or in a semi-recumbent position while eating to prevent coughing [5]. (4) Facial Function Guidance: Early postoperatively, numbness in the forehead area might occur. Patients were provided with facial warm compresses or massages. Additionally, families were instructed to perform forehead muscle exercises to promote muscle function and alleviate numbness [6]. (5) Outpatient Guidance: Patients and families were instructed to protect the eyes, use eye drops as directed, and reduce outdoor activities for three months postoperatively to minimize exposure to wind, sun, and harmful substances. When engaging in outdoor activities, appropriate eyewear should be worn to prevent foreign objects from entering the eyes. Regular follow-up appointments were advised to monitor potential recurrences. Patients were guided through exercises such as blinking, eye movement, and massage of the forehead muscles for upper eyelid functional recovery, ensuring proper functioning of the levator and frontalis muscles and promoting early restoration of eyelid function [6].

2.4 Observation Indicators

(1) Treatment Compliance: Divided into categories of complete compliance, partial compliance, and non-compliance. Compliance rate = (Total number of subjects - Number of cases with complete non-compliance) / Total number of subjects × 100%

(2) Postoperative Complications: Including exposure keratitis, eyelash inversion, and incomplete eyelid closure. Total incidence of complications = Number of cases with complications / Total number of subjects × 100%

(3) Nursing Satisfaction: A self-designed questionnaire from our hospital was used, categorized as dissatisfied, moderately satisfied, and very satisfied. Satisfaction rate = (Total number of subjects - Number of dissatisfied cases) / Total number of subjects × 100%

(4) Quality of Life: The quality of life of the children was assessed based on the "SF-36 Health Survey Questionnaire." It encompassed physical functioning, bodily pain, social functioning, and emotional well-being. Scores ranged from 0 to 100, with higher scores indicating better quality of life.

2.5 Statistical Methods

Statistical analysis was performed on the data from the two groups. Continuous data and categorical data were represented as ($\overline{X}\pm s$) and [n (%)] respectively. The t-test (t) and χ^2 test (chi-square) were employed for analysis. Results with a statistical significance level of $P < 0.05$ were considered meaningful. Statistical analysis was conducted using SPSS version 24.0.

3. Results

3.1 Treatment Compliance

The treatment compliance in the control group was lower than that in the observation group ($P < 0.05$), as shown in Table 2.

Table 2. Comparison of Treatment Compliance [n (%)]

Group	Number	Complete Compliance	Partial Compliance	Complete Non-compliance	Compliance Rate
Control Group	41	14(34.15)	19(46.34)	8(19.51)	33(80.49)
Observation Group	41	17(41.46)	23(56.1)	1(2.44)	40(97.56)
χ^2	-	-	-	-	6.116
P	-	-	-	-	0.013

3.2 Postoperative Complications

The total incidence of postoperative complications in the observation group was lower than that in the control group ($P < 0.05$), as shown in Table 3.

Table 3. Comparison of Postoperative Complications [n (%)]

Group	Number	Exposure Keratitis	Inversion	Incomplete Eyelid Closure	Total Incidence
Control Group	41	3(7.32)	2(4.87)	2(4.88)	7(17.07)
Observation Group	41	1(2.44)	0(0)	0(0)	1(2.44)
χ^2	-	-	-	-	4.986
P	-	-	-	-	0.026

3.3 Nursing Satisfaction

The nursing satisfaction in the control group was lower than that in the observation group ($P < 0.05$), as shown in Table 4.

Table 4. Comparison of Nursing Satisfaction [n (%)]

Group	Number	Very Satisfied	Moderately Satisfied	Dissatisfied	Satisfaction Rate
Control Group	41	14(34.15)	19(46.34)	8(19.51)	33(80.49)
Observation Group	41	16(39.02)	23(56.1)	2(4.88)	39(95.12)
χ^2	-	-	-	-	4.100
P	-	-	-	-	0.043

3.4 Quality of Life

Before nursing interventions, there was no significant difference in the quality of life scores between the two groups ($P > 0.05$). However, after nursing interventions, the quality of life scores in the observation group were higher than those in the control group ($P < 0.05$), as shown in Table 5.

Table 5. Comparison of Quality of Life ($\bar{X}$±s, scores)

Group	Number	psychological function		Bodily function		social function		Physical Functioning	
		Before Nursing	After Nursing	Before Nursing	After Nursing	Before Nursing	After Nursing	Before Nursing	After Nursing
Control Group	41	52.58±6.36	80.59±7.83	53.34±7.92	81.72±8.40	54.70±7.75	79.91±8.90	51.48±6.45	79.47±5.36
Observation Group	41	52.67±6.73	90.67±7.35	53.48±7.71	92.35±7.73	54.36±7.88	93.94±7.27	51.23±6.39	85.20±6.48
t	-	0.062	6.010	0.081	5.963	0.197	7.817	0.176	4.363
P	-	0.951	< 0.001	0.936	< 0.001	0.844	< 0.001	0.860	< 0.001

4. Discussion

Congenital ptosis has a significant impact on a child's appearance and can hinder the development of photoreceptor cells in the retina, leading to conditions like amblyopia or reduced visual acuity. Early treatment is crucial. However, due to the young age of children with congenital ptosis, they often lack self-control and have lower clinical compliance. Conventional nursing interventions may not yield ideal results, as these children might fear pain and thus avoid closing their eyes. Moreover, many children do not adhere to instructions for applying eye ointment or eye drops correctly, increasing the likelihood of complications like exposure keratitis, poor eyelid closure, and eyelash inversion. These complications can impact nursing satisfaction and surgical outcomes [7].

In clinical practice, congenital ptosis is commonly observed in adolescents. Since they are unable to lift their eyelids, these patients tend to tilt their heads back and raise their eyebrows to see objects, which affects their daily life and appearance. As a result, they might avoid communication and social interaction. During the nursing process, active communication with the patients, establishing rapport, and providing timely psychological counseling are crucial. Analyzing the underlying reasons for problems and applying effective nursing interventions are essential. Strengthening health education and enhancing treatment compliance among both the patients and their families empowers them with comprehensive knowledge of treatment and care, fostering their active participation in the clinical process. This approach can reduce the incidence of complications and promote recovery [8].

To provide more effective and rational nursing interventions for pediatric patients and promote their early recovery, postoperative nursing intervention is of paramount importance. Among the various aspects of postoperative care, rehabilitation exercises stand out as the most crucial, as both functional and rehabilitation exercises directly impact the visual development and facial aesthetics of the pediatric patients. It is imperative to follow medical guidance for functional exercises in order to prevent postoperative complications [9].

In this study, the treatment compliance in the control group was lower than that in the observation group ($P < 0.05$). The overall incidence of postoperative complications in the observation group was lower than that in the control group ($P < 0.05$). The nursing satisfaction in the control group was lower than that in the observation group ($P < 0.05$). Furthermore, after nursing intervention, the observation group exhibited higher scores for quality of life compared to the control group ($P < 0.05$). These findings collectively indicate that comprehensive nursing interventions have a significant positive impact. This approach primarily involves targeted nursing interventions through dietary interventions, psychological guidance, prevention of complications, facial function guidance, and external guidance for pediatric patients. This strategy effectively reduces the occurrence of postoperative complications, promotes postoperative recovery, increases nursing satisfaction, alleviates psychological pressure on both patients and their families, enhances treatment compliance, and accelerates the recovery of facial functions[10]. Comprehensive nursing intervention emphasizes postoperative observation and psychological guidance to foster a positive nurse-patient relationship. It involves guiding patients or their families to practice good eye hygiene before and after surgery to prevent complications. During the application of eye ointment, it is important to avoid the eyelashes and use cold compresses to reduce eyelid swelling, while also timely changing bandages. According to the patient's recovery status, personalized dietary plans are devised to ensure ample nutrition intake. The consumption of high-fiber, easily digestible, and nutritionally valuable foods promotes wound healing. In the context of facial function exercises, patients are given interventions such as facial warm compresses or massages. Encouraging actions like furrowing the brows aids in the recovery of facial muscle function, reducing numbness in the frontal area. External guidance includes instructing patients to protect their eyes, use eye drops correctly, limit outdoor activities, and wear protective eyewear to prevent foreign substances from entering the eyes. Families are advised to schedule regular follow-up visits, and patients are guided through exercises like blinking and eye movement, along with massaging the frontal muscle flap, all of which contribute to the rehabilitation of upper eyelid functions. This ensures the proper functionality of the orbicularis oculi and frontal muscle flap, thus facilitating early recovery of eyelid functions.

5. Conclusion

This study investigated the impact of nursing interventions on treatment compliance in pediatric patients with congenital ptosis after surgery. Through a comparison of 82 cases of congenital ptosis postoperative patients, the following conclusions were drawn. Implementing comprehensive nursing interventions for postoperative pediatric patients with congenital ptosis can reduce the occurrence of complications, further enhance treatment compliance, improve quality of life and nursing satisfaction, and promote recovery. This approach is worth promoting.

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