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Original Article

Effect of comprehensive nursing on patients with chalazion undergoing intense pulsed light and its influence on postoperative recurrence

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Abstract: Objective: To explore the effect of comprehensive nursing on patients with chalazion undergoing intense pulsed light (IPL) and its influence on postoperative recurrence. Methods: In this retrospective study, the medical records of 72 patients who received IPL treatment for chalazion from October 2021 to February 2023 were analyzed. Among them, 33 patients treated with comprehensive nursing were included in the research group (RG) and 39 patients treated with routine nursing were included in the control group (CG). The treatment effect, complications and recurrence were compared between the two groups. The psychological state of patients and their satisfaction about the nursing were recorded and compared between the two groups. Results: After nursing, the severity of unhealthy emotion in the RG was obviously better than that in the CG (P=0.033); The overall response rate in the RG was obviously higher than that in the CG (P=0.035). The nursing satisfaction in RG was significantly higher than that in the CG (P=0.035). The incidence of complications in RG was obviously lower than that in the CG (P=0.045). Conclusion: Comprehensive nursing is effective in improving the therapeutic effect and reducing the postoperative recurrence rate for patients with chalazion.

Keywords: Comprehensive nursing, chalazion, effect, postoperative recurrence

Introduction

Chalazion, also known as meibomian gland cyst, is a chronic inflammatory granuloma caused by the blockage of meibomian gland discharge tube and secretion retention [1]. The meibomian gland of eyelid can secrete lipid to keep eyes moist. However, if its outlet becomes obstructed, cysts may develop, leading to chalazion [2]. Chalazion is typically a type of aseptic inflammation, which belongs to common diseases in ophthalmology, often occurring in children and adults, mainly in teenagers [3]. At present, the incidence of chalazion is on the rise due to the improvement of living standards. According to relevant data, chalazion is prevalent among school-age children and adults aged 30-50, and the incidence rate is higher in infants aged 1-3, accounting for over 50% [4]. Adults aged 30-50 years may experience chalazion due to irregular patterns of work and rest, eyestrain, or chronic eye diseases such as keratitis and conjunctivitis. The disease progresses slowly and may recur. Most patients do not experience early symptoms or discomfort, but rather a lump or swelling on the eyelid. As the disease progresses and the mass continues to enlarge, patients may experience an evident feeling of a foreign object in their eye, along with blurred vision and other symptoms. A small number of patients will be accompanied by redness, swelling, pain and other symptoms [5]. In addition, the lump presses on the eyeball which may induce eye problems such as astigmatism. At present, there are various treatment methods available for chalazion, such as drug therapy and surgical therapy. However, treatment with drugs alone may not be as effective. Surgical resection may also affect the function of meibomian gland or the appearance due to skin scar caused by surgical resection [6]. With the development of science and technology, more and more ophthalmologists began to study the effect of IPL therapy on meibomian

gland disorder, with good feedback [7]. However, quality of life is often affected due to the high recurrence rate of the disease, the poor physical and mental state of patients, and the susceptibility to various postoperative complications caused by surgery [8]. Therefore, it is necessary to strengthen the postoperative care in order to speed up the recovery of patients while devoting to the treatment of new technology in clinic.

Clinical nursing intervention has been widely used in medicine in recent decades [9, 10]. Routine nursing can no longer meet the nursing needs of patients, so it is necessary to find a targeted nursing model to help patients accelerate their recovery. Comprehensive nursing is a kind of full-scale nursing intervention, which takes nursing procedure as the core, systematizes nursing procedure and fully integrates the advantages of responsibility nursing and team nursing, thus ensuring the level and quality of nursing service [11, 12]. Study by Jackson et al. [13] has shown that patients with chalazion who received high-quality nursing have higher satisfaction, which is easier to be accepted by patients than routine nursing. High-quality nursing can reduce the complications and significantly improve the quality of life, indicating the feasibility of clinical nursing.

At present, there are relatively few studies on comprehensive nursing in chalazion patients. Although some studies have shown that high-quality nursing can alleviate symptoms and promote healing, the existing research results are still uncertain and lack specificity. Therefore, comprehensive nursing was used to intervene in patients with chalazion in this study, so as to explore the efficacy of this nursing scheme and its influence on postoperative recurrence, aiming at providing more reliable reference for the clinical treatment of this disease.

Methods and materials

Clinical data

From October 2021 to February 2023, a retrospective study was conducted on the medical records of 72 patients who received intense pulsed light (IPL) treatment for chalazion. Among them, 33 patients were treated by comprehensive nursing as the research group (RG) and 39 patients were treated by routine nursing as the control group (CG). This research was ratified by the Medical Ethics Committee of the Army Medical Center of PLA. The flow chart for this study is detailed in **Figure 1**.

Inclusion and exclusion criteria

Inclusion criteria: patients who met the diagnostic criteria related to chalazion [14]; patients without allergy to light energy; patients with complete clinical data and medical records; patients without any communication disorder.

Exclusion criteria: those who did not cooperate with the study; those with low compliance, cognitive dysfunction or mental disorders; those with coexisting infectious or immune diseases.

Nursing methods

CG: All patients received IPL therapy and routine nursing intervention [15, 16]. Before treatment, the basic disease education was carried out, and the treatment plan, date, process and matters needing attention were formulated according to the actual situation. Meanwhile, the patients and their families were informed about the process. Following the therapy, the patient's condition was monitored in time and any issues in the nursing process were promptly reported to the physician for immediate handling.

RG: All patients were treated with IPL therapy on the basis of comprehensive nursing [17, 18], and a targeted nursing plan was formulated according to the actual situation. The methods were as follows: (1) Preoperative health education. According to the cognition and education level of patients and their family members, the targeted health education strategies were developed and explained in detail, including information on chalazion, IPL treatment, related knowledge, nursing precautions and related knowledge. (2) Preoperative psychological care. During the treatment, medical staff communicated with patients actively and explained patiently. Patients were informed that IPL therapy is a painless and non-invasive treatment, which could reduce the surgical pain of patients and avoid the damage of meibomian gland tissue and surgical incision scar caused by surgery, so as to eliminate the anxiety and nervousness of patients. (3) Intraoperative ca-

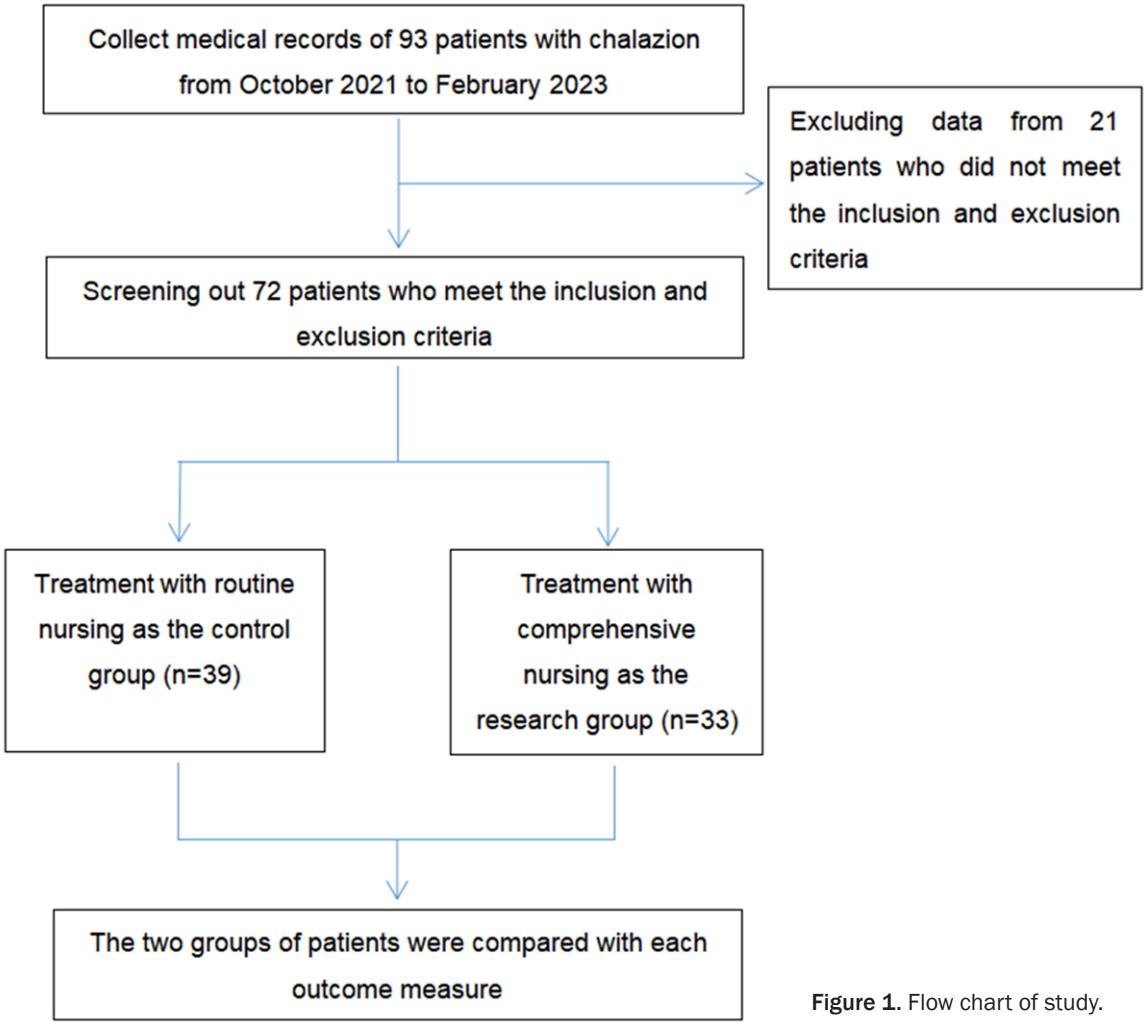

Figure 1. Flow chart of study.

re. Before treatment, patients were given a protective eye mask to keep them comfortable and cover both eyes, and gel was applied evenly over the mask. During treatment, medical staff paid attention to ask the patient's comfort level. If there is slight tingling, it is normal. If the patient has severe pain and poor tolerance, it is necessary to adjust the energy density appropriately to ensure the comfort of the treatment. (4) Postoperative care. After IPL, the gel around the patch and the patch were removed. Then, an eye ointment was applied. Care should be taken to avoid excessive stimulation to meibomian gland during nursing. (5) Life care. Patients were advised to correct irregular living habits such as smoking and excessive alcohol consumption. Patients were encouraged to have a healthy diet rich in vegetables and fruits while reducing their intake of spicy foods. Patients were also educated on the importance of eye hygiene, and not rubbing their eyes with their hands. (6) Postoperative precautions. Nursing staff informed patients to avoid long-term direct sunlight after receiving treatment which may affect the treatment effect. Patients were reminded to follow the doctor's advice, apply the medicine on time, and review regularly. If there is any discomfort after surgery, the patient needs to go to the hospital in time for treatment. (7) Keep in touch. Nurses should maintain good relationship with patients and ensure close communication. In post-treatment care, medical staff timely answered questions and obtained real-time information to ensure the effectiveness of treatment. If there is any abnormality in the nursing process, it is necessary to inform the doctor in time and deal with it.

Table 1. Evaluation criteria for clinical efficacy

Efficacy grade	Evaluative criteria
Markedly effective	The cyst disappeared completely, or the volume decreased by ≥ 80%.
Effective	The volume of cyst decreased by < 80% but ≥ 50%.
Ineffective	The volume of cyst decreased by less than 50% or the size was unchanged.

Table 2. Comparison of baseline data

Factors	CG (n=39)	RG (n=33)	X^2	P
Age			0.859	0.354
≤ 40 years old	17	18		
> 40 years old	22	15		
Gender			1.165	0.280
Male	14	16		
Female	25	17		
Diet habit			0.563	0.453
Spicy	19	19		
Light	20	14		
Course of disease			1.706	0.192
≤ 15 d	26	17		
> 15 d	13	16		
Educational level			0.020	0.889
Below junior college	23	20		
Junior college and above	16	13		
Living environment			0.004	0.953
City	21	18		
Rural	18	15		

RG: research group; CG: control group.

Table 3. Comparison of fear and anxiety during treatment

	CG (n=39)	RG (n=33)	X^2	P
Severe	4 (10.26)	1 (3.03)	4.569	0.033
Moderate	15 (38.46)	7 (21.21)		
Mild	20 (51.28)	25 (75.76)		

RG: research group; CG: control group.

Outcome measures

Main outcome measures: After the end of the nursing, the therapeutic effects were compared between the two groups. Overall response rate = (markedly effective + effective) × 100%/total number of patients. The evaluation criteria of efficacy are shown in **Table 1**. After nursing, the incidences of postoperative complications and recurrence were compared between the two groups.

Secondary outcome measures: During the treatment, the psychological state of patients was observed by Hamilton anxiety scale (HAMA) in the two groups [19]. After the end of the nursing, the self-made nursing satisfaction questionnaire was used to evaluate the patients' nursing satisfaction, with a total score of 100, of which < 60 was dissatisfied, 60~89 was basically satisfied, and ≥ 90 was satisfied. Satisfaction = (satisfactory + basically satisfaction)/total cases × 100%.

Statistical methods

SPSS 21.0 was used for statistical analysis of the data. Graphpad Prism 7 (GraphPad Software Co., Ltd., San Diego, USA) was used to analyze the collected data. Kolmogorov-Smirnov test was applied to evaluate the normal distribution. Chi-square test was applied to compare the counting data, which was expressed by [n (%)]. All the measurement data were in line with normal distribution. The independent sample t test was used for statistical analysis between the two groups, and the paired t test was used for intra-group comparison. There was statistical difference with $P < 0.05$.

Results

Comparison of baseline data

Comparing the basic clinical data, it was found that there was no statistical difference in age, gender, diet habit, course of disease, educational level and living environment between the two groups (all $P > 0.05$) (**Table 2**).

Comparison of psychological state

Comparing the psychological state (fear, anxiety, etc.) between the two groups, it was found that the proportion of patients with severe unhealthy emotion in the RG was obviously lower than that in the CG after nursing ($P= 0.033$) (**Table 3**).

Table 4. Comparison of therapeutic effect

Groups	Markedly effective	Effective	Ineffective	Overall response rate
CG (n=39)	16 (41.03)	10 (25.64)	13 (33.33)	26 (66.67)
RG (n=33)	24 (72.73)	5 (15.15)	4 (12.12)	29 (87.88)
X^2		1.192		4.459
P		0.275		0.035

RG: research group; CG: control group.

Table 5. Comparison of nursing satisfaction

Groups	Satisfactory	Basically satisfaction	Dissatisfaction	Satisfaction
CG (n=39)	10 (25.64)	16 (41.03)	13 (33.33)	26 (66.67)
RG (n=33)	14 (42.42)	15 (45.45)	4 (12.12)	29 (87.88)
X^2		0.143		4.459
P		0.705		0.035

RG: research group; CG: control group.

Table 6. Comparison of complications

Groups	Local skin redness and swelling	Infection	Postoperative recurrence	Incidence of complications
CG (n=39)	2 (5.13)	1 (2.56)	4 (10.26)	7 (17.95)
RG (n=33)	0 (0.00)	0 (0.00)	1 (3.03)	1 (3.03)
X^2	1.741	0.858	1.444	4.028
P	0.187	0.354	0.229	0.045

RG: research group; CG: control group.

Comparison of therapeutic effect

Comparing the efficacy between the two groups, it was found that the overall response rate of patients in the RG was obviously higher than that of patients in the CG after nursing (P=0.035) (**Table 4**).

Comparison of nursing satisfaction

Comparing the nursing satisfaction between the two groups, it was found that the nursing satisfaction in the RG was obviously higher than that in the CG (P=0.035) (**Table 5**).

Comparison of complications

Comparing the complications between the two groups, it was found that the incidence of complications in the RG was obviously lower than that in the CG (P=0.045) (**Table 6**).

Discussion

Chalazion is a common eye disease, which is easy to recur and seriously affects eye health [20]. In the early stage, the patient was clinically presented with painless nodules on the upper or lower eyelid of the eye, without redness, swelling and pain around the skin [21]. For patients with early chalazion, conservative physical therapy such as hot compress can be adopted to make meibomian gland cyst absorb itself. If the mass can't be improved after about two weeks of physical therapy or if it becomes hardened in the later stage, other treatments such as surgery may be necessary to prevent the disease from worsening [22]. Chalazion operation is a common procedure in ophthalmolog, but it may still carry some risks such as postoperative wound infection, wound nonunion, and scars that affect the appearance caused by operation. In recent years, studies have been conducted on the use of IPL technology for the treatment of chalazion. This new approach offers a promising alternative to surgery [23, 24]. For multiple chalazions, IPL can reduce the number of chalazion operations, improve meibomian gland function and effectively reduce the recurrence rate. Due to the lack of adequate understanding of the new technology, patients are prone to have different degrees of anxiety, nervousness, impatience, intranquil and other negative emotions, thus hindering the treatment of diseases, so nursing work is particularly important.

At present, most of the clinical nursing work is simply based on nursing diseases, so it is difficult to meet the needs of patients for nursing in many aspects. In the process of medical care, comprehensive nursing was designed to consider the various needs of patients, and develop personalized nursing plans for individuals, so as to improve the treatment effect, reduce symptoms, promote rehabilitation and improve the quality of life. Comprehensive nursing not only focuses on the patient's physical health needs, but also emphasizes attention and support for their psychological, social and spiritual aspects, helping patients to fully recover their

health. Study by Hughes [25] has revealed that comprehensive nursing can provide psychological support to stroke patients through emotional communication, psychological counseling, and other means, reduce their negative emotions such as anxiety and depression, and also improve their self-efficacy, making them more willing to actively participate in rehabilitation treatment and promoting disease recovery and prevention of recurrence. Effective nursing measures are helpful to improve the therapeutic effect of patients. Therefore, the effect of comprehensive nursing on the patients with chalazion treated by IPL was studied and analyzed in our study. In this study, the psychological state of patients was observed and compared. The results showed that the proportion of patients with severe unhealthy emotions in the RG was obviously lower than that in the CG after nursing, suggesting that the application effect of comprehensive nursing was significantly better than that of routine nursing. Comprehensive nursing is a type of care that aims to deepen the understanding and cognition of patients and their families on the disease and operation and provide guidance and support to help patients with self-psychological adjustments, ultimately resulting in an improvement in their emotional state. This approach can effectively promote positive attitudes towards treatment and encourage better cooperation from patients during medical procedures [26]. In the study of Shen et al. [27], it is also found that comprehensive nursing can significantly alleviate the anxiety and depression of septic patients, thus improving the prognosis and quality of life of patients, which is similar to the finding of our study. In this study, the therapeutic effect was observed in both groups. The results revealed that the overall response rate of patients in the RG was significantly higher than that in the CG after nursing, suggesting that the therapeutic effect of comprehensive nursing was significantly better than that of routine nursing. The reason is that, compared with routine nursing, comprehensive nursing is designed to pay attention to individual differences and provide targeted nursing programs, so that the treatment effect can be optimal [28]. In the research of Wang et al. [29], it is also found that comprehensive nursing can significantly improve the clinical efficacy of patients with cerebral hemorrhagic hemiplegia (CHH), enhance their exercise ability and improve the quality of life, which is similar to the finding of this study. In terms of its reasons, compared with routine nursing, comprehensive nursing can develop more targeted and individualized care plans that are more in line with personal needs, identify health problems and needs at different levels through comprehensive and systematic assessments, so as to restore health to the greatest extent possible. Observing the nursing satisfaction, it was found that the nursing satisfaction of the patients in the RG was obviously higher than that of the patients in the CG, indicating that comprehensive nursing was easier to be accepted by patients than a single routine nursing, and the patients' cooperation was higher, so the disease treatment was less difficult.

At the end of the study, the complications of patients were analyzed and compared. The results showed that the incidence of postoperative complications in the RG was significantly lower than that in the CG, indicating that the incidence of complications after comprehensive nursing was lower, and the recurrence rate of chalazion was significantly improved. Therefore, comprehensive nursing can effectively reduce the number of chalazion operations for patients and alleviate their psychological burden. At the same time, research by Wei et al. [30] has shown that comprehensive nursing can effectively reduce the incidence of postoperative complications in patients with gallstones during perioperative period, relieve pain, and thus improve the quality of life.

Although this study has revealed the effectiveness of comprehensive nursing in patients with chalazion treated by IPL, there are still some shortcomings. For example, there are some differences in the work experience of nurses, which may have an impact on the nursing quality of patients in both groups. In addition, the sample size of this study is small, so the experimental results may be biased. Therefore, we hope to carry out more experiments and in future studies as to improve our research conclusions.

To sum up, comprehensive nursing can effectively improve the therapeutic effect of patients with chalazion, alleviate the negative emotion, relieve the psychological burden, reduce the incidence of complications and postoperative recurrence rate, accelerate the recovery pro-

cess, and enhance their quality of life. These findings suggest that comprehensive nursing is a valuable approach that should be applied and promoted in clinical settings.

Disclosure of conflict of interest

None.

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