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Analysis of Improved Daily Living Ability after Surgery for Patients with Glioma through the Combination of Enhanced Recovery After Surgery (ERAS) Nursing and Empathy Intervention

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Abstract: *Objective*: To systematically explore the effectiveness of combining Enhanced Recovery After Surgery (ERAS) nursing and empathy intervention for postoperative patients with glioma. *Methods*: A total of 54 patients with glioma undergoing surgical treatment were selected for the study. The patients were admitted to the hospital between April 2023 and April 2025. The patients were divided into an observation group (n=27) and a control group (n=27) based on a random number table method. Relevant intervention indicators were compared between the two groups. *Results*: Compared with the control group, the postoperative recovery indicators in the observation group showed significant differences ($P < 0.05$). After intervention, the scores of stress psychological indicators, FMA, NHISS, and ADL in the observation group were all better than those in the control group ($P < 0.05$). The incidence of complications in the observation group was significantly lower than that in the control group ($P < 0.05$). *Conclusion*: The combined application of empathy intervention and ERAS nursing effectively regulates the postoperative stress psychological state of patients with glioma, significantly improves their limb and neurological functions as well as daily living abilities, accelerates postoperative recovery, and reduces complications. This approach is feasible for wider implementation.

Keywords: Enhanced Recovery After Surgery (ERAS) concept; Empathy intervention; Glioma; Daily living ability

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1. Introduction

In clinical practice, neurological deficits and increased intracranial pressure are common symptoms of patients with glioma, which has a very high fatality rate and is classified as a primary intracranial malignancy [1]. Surgical removal of the tumor is currently the preferred treatment for such patients, as it can alleviate their symptoms and prolong survival time with considerable efficacy [2]. However, surgical treatment always faces high risks, causing damage to the surrounding brain tissue and affecting postoperative daily living abilities and neurological functions

due to individual behavior and psychological states. Therefore, it is necessary to actively adopt scientific intervention measures [3]. Currently, the ERAS concept, as a common perioperative nursing philosophy, has been proven by evidence-based medicine to ensure a smooth perioperative period and accelerate patient recovery [4]. Empathy intervention, on the other hand, is used as a psychological counseling tool to provide strong emotional support to patients and reduce their negative psychological states [5]. To this end, the following study focuses on exploring the combined value of these two intervention approaches by including surgically treated glioma patients in the research.

2. Materials and methods

2.1. Clinical data

The subjects of this study were surgically treated glioma patients (n = 54). All patients were admitted to the hospital between April 2023 and April 2025. The patients were divided into two groups (27 in each group) based on a random number table method. In the control group, there were 15 male patients and 12 female patients, with ages ranging from 66 to 29 years old and a median age of (42.68 ± 9.27) years. In the observation group, the gender ratio was male: female = 14: 13, and the ages ranged from 26 to 68 years old, with an average age of (42.64 ± 9.31) years. The basic characteristics of the two groups were similar, showing no statistical significance ($P > 0.05$) and thus ensuring comparability.

2.2. Methods

2.2.1. Control group (routine nursing)

Patients were provided with nursing services following basic nursing principles during the perioperative period.

2.2.2. Observation group (Enhanced Recovery After Surgery (ERAS) nursing + empathy intervention)

(1) Preoperative phase

Health education and promotion were conducted by nursing staff 1–2 days before surgery, taking into account the patients' cultural level and understanding ability. This was done through face-to-face interactions, lectures, or video playbacks. The focus was on disease-related treatment methods and key points to note. In terms of psychological intervention, an in-depth understanding and recognition of patients' inner needs and confusion were formed through communication, and necessary psychological intervention and spiritual support were provided. Cases with ideal intervention effects were selected to exert their motivating effects, and families were guided to actively participate in patient care, effectively reducing negative emotions. If patients were overly restless or afraid, evocative questioning techniques were used to create emotional resonance and achieve emotional regulation and improvement. Patients were also guided to recall happy experiences independently, shifting their focus and ensuring they remained in a pleasant state with reduced psychological stress. During preoperative preparation, patients were informed to fast from food and water for 6 and 2 hours before surgery, respectively, and to consume a carbohydrate drink or nutrient solution (300–400 ml) 2 hours before surgery to improve their feelings of hunger and thirst. Patients were guided to ensure effective coughing and practice blowing balloons to strengthen respiratory system management.

(2) Intraoperative phase

The operating room temperature was adjusted to 23–26 degrees Celsius before the patient entered. Fluids for infusion and cleaning were warmed to 35–37 degrees Celsius. Blankets or heating pads were prepared to provide necessary warmth to non-surgical areas of the patient. During the surgery, nursing staff followed goal-directed fluid replacement and restrictive fluid replacement principles, avoiding unnecessary medical devices (such as drainage tubes). At the same time, key monitoring of patients' vital signs and surgical progress was conducted, and active cooperation with doctors was provided to complete relevant procedures. Postoperative phase: Multi-modal analgesic interventions were selected based on patients' postoperative pain status. If patients experienced mild pain, music and video playback were options, or guiding words could be used to alleviate pain. For moderate to severe pain, non-opioid medications were administered. Patients' blood pressure levels were monitored in real-time, and if there was a trend of continuous elevation, the attending doctor was contacted and feedback was provided to take timely measures to reduce intracranial pressure. Based on the surgical site, patients were given necessary assistance to choose a reasonable position to avoid pressing on the wound and brainstem. Positions were changed regularly to prevent limb numbness and contractures. In terms of nutrition, if no abnormalities occurred 6 hours after surgery, patients could consume light liquid foods and transition to semi-liquid and regular foods after bowel ventilation, trying to consume more foods high in vitamins and protein. One day after surgery, patients could get out of bed and engage in activities, adjusting the time and frequency of exercise based on the patient's physical condition and following the principle of gradual progress.

2.3. Evaluation indicators

(1) Systematic evaluation of patients' postoperative recovery indicators, stress psychological indicators before and after intervention, FMA score, NHISS score, and ADL score.

(2) Comparison of complication rates between groups.

2.4. Statistical analysis

Statistical software SPSS 21.0 was used to process the data from both groups, with $P < 0.05$ as the basis for expressing statistical differences.

3. Results

3.1. Study on postoperative recovery indicators in the observation group and control group

The indicators in the observation group were compared with those in the control group, with $P < 0.05$ (**Table 1**).

Table 1. Comparison of postoperative recovery indicators between the two groups

Group	n	First feeding time (h)	Catheter removal time (h)	First ambulation time (h)	IV fluids discontinuation time (d)
Observation group	27	6.36 ± 2.32	12.96 ± 2.23	18.77 ± 3.47	3.44 ± 0.67
Control group	27	8.56 ± 2.43	15.96 ± 3.09	25.75 ± 4.22	4.14 ± 1.06
t-value		3.4026	4.0908	6.6385	2.9006
p-value		0.0013	0.0001	0.0000	0.0054

3.2. Analysis of changes in psychological stress indicators between two groups of patients

Before intervention, there was no significant difference in relevant indicators between the groups, i.e., $P > 0.05$. After intervention, the scores of various psychological stress indicators in the observation group were lower than those in the control group, with $P < 0.05$ (**Table 2**).

Table 2. Comparison of psychological stress indicators before and after intervention between the observation group and the control group ($\overline{x} \pm s$)

Group	n	Sadness		Depression		Distress		Anxiety		Anger	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Observation group	27	35.68 ± 1.46	16.27 ± 1.32	35.37 ± 1.47	16.38 ± 1.11	36.35 ± 2.67	18.80 ± 1.75	36.43 ± 0.89	19.14 ± 1.43	37.33 ± 2.53	20.05 ± 1.42
Control group	27	35.64 ± 1.42	27.74 ± 1.22	35.34 ± 1.42	27.09 ± 1.34	36.33 ± 2.63	27.06 ± 1.42	36.45 ± 0.94	26.64 ± 1.57	37.35 ± 2.56	27.64 ± 1.14
t-value		0.1021	33.1581	0.0763	31.9827	0.0277	19.0448	0.0803	18.3512	0.0289	21.6579
p-value		0.9191	0.0000	0.9395	0.0000	0.9780	0.0000	0.9363	0.0000	0.9771	0.0000

3.3. Comparison of FMA scores, NHISS scores, and ADL scores before and after intervention between the observation group and the control group

After intervention, comparing various indicators between the groups showed $P < 0.05$. (**Table 3**)

Table 3. Study on changes in FMA scores, NHISS scores, and ADL scores between the two groups of patients

Group	n	FMA score (points)		NIHSS score (points)		ADL score (points)	
		Pre	Post	Pre	Post	Pre	Post
Intervention group	27	55.08 ± 5.47	77.08 ± 7.38	17.37 ± 2.43	9.05 ± 1.17	53.77 ± 4.44	72.38 ± 6.09
Control group	27	55.06 ± 5.52	62.24 ± 6.57	17.34 ± 2.46	10.43 ± 1.74	53.79 ± 4.49	61.19 ± 5.45
t-value		0.0134	7.8042	0.0451	3.4199	0.0165	7.1147
p-value		0.9894	0.0000	0.9642	0.0012	0.9869	0.0000

3.4. Comparison of complication rates between the two groups of patients

The overall incidence rate in the observation group was lower than that in the control group, with $P < 0.05$ (**Table 4**).

Table 4. Analysis of complication rates in the observation group and the control group (n/%)

Group	n	DVT n(%)	Infection n(%)	Cerebral edema n(%)	Total incidence n(%)
Intervention group	27	1 (3.70)	1 (3.70)	0 (0.00)	2 (7.41)
Control group	27	3 (11.11)	4 (14.81)	2 (7.41)	9 (33.33)
χ^2 value					5.5941
p-value					0.0180

4. Discussion

Brain glioma has become a common intracranial tumor disease, but its pathogenesis has not been determined.

Clinically, it is believed to be associated with ionizing radiation and genetic mutations [6]. Currently, due to the influence of carcinogenic factors, the clinical incidence of brain glioma is increasing year by year, and the main treatment method is surgery, which can achieve ideal efficacy [7–10]. However, surgery is a type of stressor. If affected by external factors, it can easily restrict the post-operative recovery of the patient's body. Therefore, it is necessary to implement necessary nursing interventions [11].

In the study, the postoperative recovery indicators of the observation group were compared with those of the control group, with $P < 0.05$. This demonstrates the positive effect of combined nursing intervention on the physical recovery of patients after brain glioma surgery. The reason lies in the integrated characteristics of the program, which optimizes and improves preoperative preparation, intraoperative, and postoperative nursing content through the application of multidisciplinary cutting-edge research evidence. This is beneficial for reducing patients' stress responses and facilitating their postoperative recovery [12–14]. After intervention, the observation group had better FMA scores, NHISS scores, ADL scores, and stress psychological indicators than the control group, with $P < 0.05$. This confirms that this intervention approach focuses on the patient as the core of nursing, utilizes empathy intervention methods to truly feel the patient's emotions and form resonance, transforms negative emotions through emotions and intentions, and achieves the goal of improving prognosis [15]. Based on the integration with the concept of accelerated rehabilitation surgery, it regulates patients' neurological function and daily living abilities. The incidence of complications in the observation group was lower than that in the control group, with $P < 0.05$. This also indicates the effectiveness of the combined intervention program, which implements nursing for patients at various surgical stages based on evidence-based medical evidence and multidisciplinary collaboration, reducing the risk of complications.

5. Conclusion

Overall, the combined application of empathy intervention and the concept of accelerated rehabilitation surgery during the entire surgical treatment process for patients with brain glioma promotes their postoperative recovery speed to some extent. It also improves their neurological, motor, and daily living abilities, with fewer complications, making it worthy of promotion.

Disclosure statement

The author declares no conflict of interest.

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