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ABOUT COVER

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Observational Study

Effects of comprehensive nursing on postoperative complications, mental status and quality of life in patients with glioma

Heng Dong, Xiao-Li Zhang, Chun-Xiang Deng, Bo Luo

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The complexity and refractory of brain glioma requires treatment that should involve a multidisciplinary approach to improve quality of care and fulfill patients' needs.

AIM

To explore the effects of comprehensive nursing on postoperative complications, psychological state and quality of life in patients with brain glioma.

METHODS

A total of 106 patients with confirmed brain gliomas admitted to Nanchong Central Hospital between January 2019 and May 2021 were selected by random sampling. They were categorized into an observation group and a control group using a random number table with 53 patients in each group. Patients in the observation group were given comprehensive nursing in addition to conventional nursing and patients in the control group were given conventional nursing. The overall incidence of postoperative complications including limb dysfunction, high fever and epilepsy was compared between the two groups. The mental status was evaluated in the two groups before and after intervention using self-rating anxiety scale (SAS) and self-rating depression scale (SDS). Quality of life was assessed and compared using the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire between the two groups before and after the intervention.

RESULTS

After intervention, the overall incidence of postoperative complications was significantly lower in the observation group (7.55%) than that in the control group (20.75%) ($P < 0.05$). Before intervention, there was no significant difference in SAS and SDS scores between the two groups ($P > 0.05$). However, after intervention, scores of SAS and SDS decreased in the two groups compared with those before

intervention, and the scores of SAS and SDS were lower in the observation group than in the control group (all $P < 0.05$). There was no significant difference in quality of life between the two groups before the intervention ($P > 0.05$). In contrast, quality of life increased in the two groups compared with those before intervention, and it was higher in the observation group than in the control group ($P < 0.05$).

CONCLUSION

Comprehensive nursing can reduce the incidence of postoperative complications, improve the psychological state of anxiety and depression and improve quality of life in patients with brain glioma.

Key Words: Brain glioma; Comprehensive nursing; Complications; Mental state; Quality of life

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Core Tip: Treatment for brain glioma is always challenging. Surgery associated complications, psychological dysfunction and poor quality of life are some of the more common harms of the disease and should be actively managed. Comprehensive nursing aims to increase patients' knowledge about their disease and encourages patients to improve their confidence and positive attitude to manage their disease through evaluation and intervention measures. This study explored the effectiveness of comprehensive nursing in relieving anxiety and depression and optimizing quality of life in patients with brain glioma undergoing operation.

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INTRODUCTION

Brain glioma is a common type of primary brain tumor in patients with intracranial tumors. It grows rapidly with a high incidence of complications, mortality and recurrence rate[1,2]. Surgical resection of the tumor is the most used therapy for the treatment of brain glioma. However, damage to functional areas of the brain may occur due to the special location of brain glioma leading to a high incidence of complications and even death[3-5].

Complications frequently occurring include limb dysfunction, high fever and epilepsy, which seriously influences the mental status and quality of life in patients with brain glioma[6]. Luckily, effective nursing can reduce the incidence of postoperative complications[7]. Comprehensive nursing provides thorough and scientific nursing to patients. Unfortunately, few studies discuss the usage of comprehensive nursing in patients with brain glioma. Therefore, the current study aimed to explore the efficacy of comprehensive nursing in patients who underwent operation for brain glioma and analyze its effects on the incidence of postoperative complications, psychological state and quality of life in patients with brain glioma.

MATERIALS AND METHODS

Participants

A total of 106 patients with confirmed brain gliomas who received treatment at Nanchong Central Hospital were selected in the study by random sampling between January 2019 and May 2021. Patients who were included were initially diagnosed with gliomas by pathological examination and underwent surgery for the disease with conscious self-awareness and complete medical records. Patients with other comorbid malignant tumors, severe cardiovascular diseases or metastatic brain gliomas, recurrent or multiple malignant gliomas, patients with cognitive dysfunction and patients with critical illnesses were excluded from the study[8]. A random number table was used to categorize these patients into an observation group and a control group with 53 patients in each group. The observation group included 28 male and 25 female patients with an age range of 43 to 64 (57.34 ± 11.57) years. Of them, 29 patients had astrocytoma and 24 patients had medulloblastoma. Twenty-seven underwent complete resection, and 26 patients underwent partial resection. The control group included 27 male and 26 female patients

with an age range of 44 to 63 (56.92 ± 12.32) years. Of them, 30 patients had astrocytoma and 23 patients had medulloblastoma. Twenty-nine patients underwent complete resection, and 24 patients underwent partial resection. Sex, age, types of diseases and operations were comparable between the two groups.

Nursing intervention

Patients in the control group received conventional nursing care which included four aspects: (1) Guidelines at hospital admission. Clinicians and nurses will collect patient data, monitor vital signs regularly and correctly process physician order; (2) Preoperative guidelines. Preoperative preparations such as preoperative skin and gastroenterological preparations will be completed; (3) Psychological nursing care. Psychological support is provided to patients, and patients and family members are informed of points for postoperative matters needs attention; and (4) Propaganda and education on health. Clinicians and nurses will educate their patients about the knowledge of brain glioma and instruct patients and their family members to increase adherence to care instructions and assist clinicians and nurses to conduct relevant examination.

In addition to the above conventional nursing, the observation group also received comprehensive nursing. It involved: (1) Creating nursing care plans; (2) Improve preoperative guidelines; and (3) Provide postoperative interventions. In terms of creating nursing care plans, a personalized nursing care plan is worked out based on the individual records of patients such as age, education background and personality[9]. With regards to preoperative guidelines, clinicians and nurses will educate their patients with the relative knowledge on the disease and operation, the potential pain and complications that may occur after the operation and how they are managed. Meanwhile, an information request form is required by clinicians and nurses to understand to what extent a patient knows the disease. Moreover, preoperative psychological intervention was offered by nurses who received specialized psychological training. Through communication, reasons hidden behind negative emotions are explored to help patients with emotional disclosure to lessen their psychological burden[10]. For postoperative interventions, nurses will assess and ascertain their patients' pain every 4 h and provide corresponding management. Furthermore, nurses will report these conditions to clinicians and process physician orders. Music therapy is usually used to lessen postoperative discomfort. In general, clinicians and nurses should focus on mental and emotional changes in patients and provide psychological counseling promptly based on clinical presence of this patient. In addition, clinicians and nurses will introduce previous successful cases to their patients to increase patient confidence to fight against the disease.

Measures

The overall incidence of postoperative complications was compared between the two groups including limb dysfunction, high fever and epilepsy. Self-rating anxiety scale (SAS) and self-rating depression scale (SDS) was used to assess changes in mental state in the two groups before and after the intervention. A cutoff value of 50 was fixed for the standard deviation of the SAS score. A standard score of 50 to 59 indicated mild anxiety, a standard score of 60 to 69 indicated moderate anxiety, and a standard score of > 69 indicated severe anxiety. For SDS, a standard score of ≥ 50 indicated depression with higher scores indicating more severe symptoms. The European Organization for Research and Treatment of Cancer Quality of Life Questionnaire was used to assess quality of life in the aspects of physical, cognitive, emotional, role and social function in the two groups before and after the intervention with higher score indicating better quality of life.

Statistical analysis

SPSS 19.0 was used as the statistical software for data analysis. Measurement data was expressed using mean \pm SD and inter-group difference was compared using Student's *t* test. Enumeration data was expressed using *n* (%) and inter-group difference was compared using χ^2 . $P < 0.05$ represented a significant difference.

RESULTS

Complications

Limb dysfunction occurred in 2 patients, high fever occurred in 1 patient, and epilepsy occurred in the observation group. The overall incidence of complications was 7.55%. In the control group, 5 patients had limb dysfunction, 4 patients had high fever, and 2 patients had epilepsy. The overall incidence of complications was 20.75%. By comparison, the overall incidence of complications was lower in the observation group than in the control group ($P < 0.05$, Table 1).

Mental state

Before the intervention, there was no significant difference in scores of SAS and SDS between the two groups ($P > 0.05$). After the intervention, SAS and SDS scores were lower compared with before the intervention. However, the scores were significantly lower in the observation group than in the control

Table 1 The overall incidence of complications in the two groups, *n* (%)

Groups	Limb dysfunction	High fever	Epilepsy	Overall incidence
Observation group (<i>n</i> = 53)	2 (3.77)	1 (1.89)	1 (1.89)	4 (7.55)
Control group (<i>n</i> = 53)	5 (9.43)	4 (7.55)	2 (3.77)	11 (20.75)
χ^2 value				5.421
<i>P</i> value				0.041

Table 2 Mental state in the two groups before and after the intervention (mean \pm SD, points)

Groups	SAS score		SDS score	
	Before the intervention	After the intervention	Before the intervention	After the intervention
Observation group (<i>n</i> = 53)	56.34 \pm 14.21	42.14 \pm 10.21 ^a	53.21 \pm 11.10	43.91 \pm 11.07 ^a
Control group (<i>n</i> = 53)	54.12 \pm 11.61	48.73 \pm 9.12 ^a	52.56 \pm 10.17	47.04 \pm 12.45 ^b
<i>t</i> value	0.982	6.092	1.223	5.011
<i>P</i> value	0.235	0.036	0.201	0.042

^a*P* < 0.05 vs before the intervention.

SAS: Self-rating anxiety scale; SDS: Self-rating depression scale.

group (*P* < 0.05, Table 2).

Quality of life

There was no significant difference in quality of life between the two groups before the intervention (*P* > 0.05). Quality of life score was increased in the two groups after the intervention compared with before the intervention. The quality of life scores were higher in the observation group than in the control group (*P* < 0.05, Table 3).

DISCUSSION

Brain glioma can develop rapidly. Surgical tumor removal is the main treatment for this disease. However, the postoperative mental state is poor in these patients because of the high incidence of postoperative complications, which have a strong impact on quality of life[11]. Fortunately, patient-centered comprehensive nursing can pay close attention to patient's thoughts and psychological change [12-14]. It does realize joint nursing, and it optimizes communication and promotes the relationship between patients and nurses so that the quality of nursing is improved[15,16]. In comprehensive nursing, effective personalized nursing can be provided to patients by using a scientific, systemic and standardized nursing program and nursing plan[17,18].

In the current study, patients with brain glioma were given comprehensive nursing. The results showed that the overall incidence of complications was 7.55% in the observation group, which was higher than the 20.75% incidence of the control group, suggesting comprehensive nursing can reduce the incidence of postoperative complications and accelerate postoperative rehabilitation in this population. This can be explained by the well thought-out nursing care plan, full focus on patients and prompt nurse-patient communication that is typical of comprehensive nursing and reduces the incidence of postoperative complications.

Meanwhile, the results indicated that SAS and SDS scores were lower in the observation group than in the control after the intervention. It manifested that comprehensive nursing could improve postoperative mental states in patients with brain glioma. It guides nurses to try to understand what concerns patients and experience and help patients to relieve stress. In addition, it builds patient trust in clinicians and improves patient mental state. Moreover, quality of life was better in the observation group than in the control group in the present study, which showed that comprehensive nursing can improve quality of life by reducing the incidence of postoperative complications and improving patient mental state.

Table 3 Quality of life in the two groups before and after the intervention (mean \pm SD, points)

Groups	Physical function		Cognitive function		Emotional function		Role function		Social function	
	Before the intervention	After the intervention								
Observation group (<i>n</i> = 53)	55.12 \pm 10.81	76.32 \pm 17.11 ^a	56.23 \pm 11.02	76.32 \pm 12.33 ^a	55.09 \pm 13.45	75.42 \pm 15.02 ^a	54.03 \pm 9.62	78.23 \pm 11.24 ^a	55.32 \pm 10.08	76.93 \pm 11.24 ^a
Control group (<i>n</i> = 53)	54.32 \pm 10.15	61.23 \pm 11.12 ^a	55.31 \pm 10.82	62.32 \pm 11.07 ^a	56.42 \pm 12.22	64.30 \pm 16.02 ^a	55.32 \pm 9.82	61.02 \pm 10.05 ^a	54.98 \pm 9.54	63.09 \pm 9.21 ^a
<i>t</i> value	0.314	11.022	0.414	12.245	0.367	9.023	0.421	13.022	0.982	11.211
<i>P</i> value	0.701	0.001	0.602	0.001	0.631	0.001	0.731	0.001	0.431	0.001

^a*P* < 0.05 *vs* before the intervention.

CONCLUSION

Comprehensive nursing can reduce the incidence of postoperative complications and improve psychological status and quality of life in patients with brain glioma.

ARTICLE HIGHLIGHTS

Research background

Brain glioma is a common type of aggressive disease that is related to a deterioration in mental health and quality of life. The complex condition raises high demand for the optimal treatment approaches and postoperative nursing strategies.

Research motivation

Comprehensive nursing care is cooperative nursing care that is provided by health professionals of different medical domains to fulfill a patient's practicable physical, mental and psychosocial healthcare requirements. Based on this, this study discussed the effectiveness of comprehensive nursing care in patients with brain glioma.

Research objectives

To determine the effects of comprehensive nursing care on postoperative complications, mental health and quality of life in patients with brain glioma.

Research methods

A total of 106 patients with brain glioma were selected and randomly categorized into an observation group and a control group with 53 patients in each group. The observation group was given comprehensive nursing as well as conventional nursing, and the control group was only given conventional nursing. Postoperative complications, mental status and quality of life were compared between the two groups after the nursing intervention.

Research results

After the nursing intervention, the incidence of complications, including limb dysfunction, high fever and epilepsy, was lower in the observation group than in the control group. Anxiety and depression were relieved in the observation group compared with the control group. Quality of life scores were higher in the observation group than in the control group.

Research conclusions

The findings of this study provide evidence that comprehensive nursing can effectively reduce the incidence of postoperative complications, promote comfort and ease, relieve anxiety and depression and improve quality of life in patients with brain glioma.

Research perspectives

Here we present our experience in providing comprehensive nursing in patients with brain glioma, and it shows that this nursing approach is effective. We need better and detailed evidence to demonstrate

the significance of this nursing strategy in this population.

FOOTNOTES

Author contributions: Dong H, Zhang XL, Deng CX, and Luo B contributed to the design of the study; Dong H wrote the manuscript; All authors have read and approve the final manuscript.

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