

STUDY ON PERIOPERATIVE NURSING OF PATIENTS IN MIDDLE OR LATE PREGNANCY COMPLICATED WITH GLIOMA

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ABSTRACT

Objective: This study discusses the perioperative nursing of patients in middle or late pregnancy complicated with glioma.

Methods: This study retrospectively analyzes clinical data of 92 patients in late pregnancy combined with glioma admitted in this hospital from January 2014 to January 2015 and divides them into two groups according to different nursing methods, with 46 cases in each group. The control group is given routine nursing, and the observation group is given standardized nursing intervention on the basis of the control group. The clinical indicators, psychological status and pain score are compared between the two groups.

Results: The heart rate and systolic blood pressure in the observation group are lower than those in the control group 1 day before surgery, at the time of trachea insertion and after the operation, and the scores of SAS, SDS, and VAS are all lower than those in the control group ($P < 0.05$).

Conclusions: Perioperative nursing may have a positive impact on the perioperative care of patients in middle or late pregnancy with cerebral glioma, as it can maintain the stability of vital signs, improve the patient's psychological status and effectively reduce the pain, which is worthy of promotion in clinics.

Keywords: Glioma, Perioperative period, Nursing intervention.

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Introduction

Gliomas are the most common primary brain tumors which are caused by the canceration of glial cells in the brain and spinal cord (see Figure 1), with an annual incidence rate of about 3-8 people per 100,000 people⁽¹⁾. Like other tumors (diseases), gliomas are also caused by an interaction between innate genetic risk factors and environmental carcinogenic factors. Some known genetic diseases, such as neurofibromatosis (type I) and tuberous sclerosis, are the genetic predisposing factor of gliomas⁽²⁾. From the viewpoint of pathophysiology, glioma is caused by a mutation (and a combination of mutations) at the level of cell genetic material (DNA) and epigenetic material under the interaction of internal genetic predisposing factors and external environmental pathogenic factors. These mutations drive the cells

to continue to enter the cell cycle for mitosis, escape apoptosis, avoid cell growth contact inhibition, avoid immunosuppression, and so on, and make the cells obtain energy metabolism abnormalities compatible with sustained growth, and induce tumor neovascular growth, hypoxia and necrosis, and other changes⁽³⁾.

Molecular changes corresponding to the clinical and cytopathological features of different grades of gliomas are also different. For example, low-grade gliomas are mainly characterized by low-speed division and proliferation, while high-grade gliomas are characterized by high-speed division and proliferation and concomitant neovascularization, as well as hypoxia and necrosis of tumors. Accordingly, low-grade gliomas often have no activation and high expression of HIF-1 and VEGF at molecular level⁽⁴⁾. It is worth noting that brain is considered to be an organ whose cells almost do not divide and proliferate under

normal physiological conditions, but at certain times and conditions, the brain central organs will have a certain degree of cell division. In childhood, for example, there is the division of neurons. Thus, neurogenic tumors, such as medulloblastoma, have a higher incidence in childhood than in adulthood. However, the occurrence of cell division does not mean the possibility of canceration. Because, in most cases, the mutations that occur during cell proliferation can be corrected by the function of “stabilization” of cellular molecules. If it cannot be corrected, the cell initiates the apoptosis pathway, causing spontaneous death of the mutated cell. As can be seen, the occurrence of a glioma is an accidental event with a small probability⁽⁵⁾. Low-grade gliomas may “accumulate” new mutations in the process of cell proliferation, thus turning them into high-grade gliomas (malignancy). In order to systematically understand the molecular etiology of gliomas, the United States launched molecular genetic mapping for gliomas in 2008. By sequencing the DNA of gliomas, it is found that on average each glioblastoma has up to 5 mutations⁽⁶⁾. Among them, NF gene is the most common mutation of tumor suppressor gene; EGFR is the most common proto-oncogene. These molecular mutations drive the expression of various signaling pathways and constitute the molecular basis for the development and progression of gliomas.

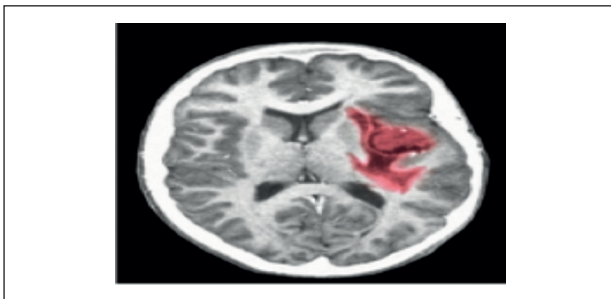


Figure 1: Medical imaging results of a patient with glioma.

Surgery is one of the effective methods for the treatment of glioma, but the pain or trauma caused by surgery and the tension of patients facing surgery can easily lead to the formation of physiological or psychological stress reaction, thus ultimately affecting the effect of surgery⁽⁷⁾. Therefore, it is especially important to give patients active nursing intervention⁽⁸⁾. This study compares 46 cases of glioma patients who have undergone perioperative nursing intervention with those of 46 patients undergoing routine nursing in order to provide reference for future clinical nursing plans. The results are reported as follows.

Data and Methods

General data

This study retrospectively analyzes clinical data of 92 cases of glioma patients undergoing surgical treatment in this hospital from January 2014 to January 2015 and divides them into two groups according to different nursing methods, observation group and control group, with 46 cases in each group. In the observation group, there are 24 males and 22 females aged 24-65 years, with an average age of (44.52 ± 0.31) years old, and with body weight 48-62 kg, at an average of (55.10 ± 0.42) kg. In the control group, there are 25 males and 21 females aged 25-67 years, with an average age of (45.03 ± 0.89) years old, and with body weight 47-63 kg, at an average of (54.92 ± 0.51) kg. There is no significant difference in baseline data between the two groups ($P > 0.05$).

Methods

Control group: Patients with glioma are given routine nursing, such as strengthening limb function exercise and improving self-care ability before and after operation. Observation group: In addition to the routine nursing given to control group, this group also enjoys nursing services as follows.

- The nurse shall introduce the basic knowledge of the disease and the basic surgical procedures to the patient in easily-understood language before the operation, and enumerate the cases of postoperative rehabilitation patients to reduce their anxiety, fear and other negative emotions.
- During the operation, the nurse shall actively cooperate with the doctor, inquiry upon the state of the patients and teach them how to relax.
- After the surgery, the nurse shall strengthen the inspection, pay attention to the emotional changes of the patients and carry out corresponding psychological counseling, guide the functional recovery training and observe and record the disease condition, and satisfy their reasonable requirements as much as possible⁽⁹⁾.

Observation index and judgment criteria: The changes of heart rate and systolic blood pressure of the two groups at admission, 1 day before operation, at the time of trachea insertion, at the end of operation and 1 day after operation are recorded. The mental state of patients is evaluated with SAS & SDS, with 50 points as the critical value, and the score is inversely proportional to the emotion. Scoring is based on visual analogue scale (VAS):

mild pain 0-3 points, moderate pain 4-6 points, and severe pain 7-10 points.

Statistical processing: All data are processed using SPSS 20.0 statistical software, the measurement data are expressed as the mean standard deviation ($\bar{x}\pm s$). The t test is used for inter-group and intra-group comparison. The count data is expressed as percentage (%) and tested by χ^2 . $P<0.05$ means there is statistically significant difference⁽¹⁰⁾.

Results

The glioma nursing knowledge awareness rate of both groups and their families revealed by results of the questionnaire is as shown in Table 1. The awareness rate of the patients and their families on the nursing knowledge of gliomas in the observation group is significantly higher than that in the control group. There is a statistically significant difference between the two groups ($P<0.05$)⁽¹¹⁾.

Groups	n	Known	Unknown	Awareness rate
Control group	46	26	20	62.0%
Observation group	46	29	15	87.9%

Table 1: Comparison of awareness rate of nursing knowledge in two groups.

The comparison of psychological status between the two groups: the SAS and SDS scores of the observation group are significantly lower than those of the control group, and the differences are statistically significant ($P<0.05$), as shown in Table 2⁽¹²⁾.

Groups	SASA	SDS
Observation group	32.10±10.75	31.26±11.14
Control group	43.27±8.39	39.12±10.58

Table 2: Comparison of the psychological status of the two groups (n=46, $\bar{x}\pm s$, points).

Comparison of clinical indicators between the two groups: The heart rate and systolic blood pressure of the two groups are higher 1 day before operation, at the time of trachea insertion and at the end of operation than at the time of admission⁽¹³⁻¹⁵⁾. However, the values of all indicators in the observation group are lower than those in the control group, and the differ-

ences are statistically significant ($P<0.05$), as shown in Table 3.

Groups	project	On admission	1h before surgery	Suction tube	End of surgery	1h after operation
Observation group	Heart rate	59.91±10.48	77.90±11.86	79.02±10.78	86.29±12.91	68.37±10.92
	Systolic pressure	97.32±14.87	124.31±15.19	126.53±17.94	118.31±13.92	116.58±17.79
Control group	Heart rate	60.15±9.84	91.85±14.76	91.30±11.99	86.30±12.87	77.12±13.68
	Systolic pressure	98.10±13.95	136.67±17.28	140.21±15.36	130.25±16.79	129.45±15.32

Table 3: Comparison of two groups of clinical indicators ($\bar{x}\pm s$, n=46).

Comparison of VAS score between the two groups: The VAS score in the observation group (2.75 ± 0.46) is lower than that in the control group (4.13 ± 1.02), and the difference is statistically significant ($P<0.05$).

According to the questionnaire, there is a significant difference in the satisfaction of patients and their families in nursing interventions ($P<0.05$), with statistical significance, as shown in Table 4. At the same time, there is a certain gap between the two groups of nursing intervention personnel's quality attitude rate, as shown in Table 5.

Groups	Very satisfied	Satisfied	Unknown	Awareness rate
Observation group	22	14	10	36%
Control group	15	16	15	24%

Table 4: Comparison of two sets of nursing satisfaction.

Groups	Excellent	Good	Unknown	Awareness rate
Observation group	25	19	2	95.65%
Control group	22	18	6	86.96%

Table 5: Comparison of nursing rate of nurses in two groups.

Conclusions

Glial tumor is a common primary brain tumor caused by human brain and spinal cord glial cell canceration, the proportion of which is as high as 40% -50% in brain malignant tumors. After admission, the patient is not only worried about the influence of disease and medication on the fetus, but also worried about the prognosis of the operation of intracranial tumor, which results in tension, anxiety and depression. The patient shall be informed that the medicine used is safe for the fetus, and the obstetrician shall be invited to provide counseling. Social support shall be offered to help the patient to develop a positive attitude to face the disease, communication with the family members of the patient's condition and treatment information shall be conducted in a timely manner, and the patient's family members shall be allowed to accompany the patient without affecting the treatment.

During the visits to the ward, the nurse shall actively talk with the patients and care about their lives, so that the patients can feel the care and support of the medical staff at all times. Studies have found that the growth of tumours during pregnancy is significantly more radioactive than before and during pregnancy. In pregnancy, due to endocrine change, there will be retention of water and sodium in the pregnant women, and the oedema around the tumour in pregnant patient will be larger than that of non-pregnant patients due to the increase of the amount of liquid inside and outside the cells.

High blood volume and high circulatory power can increase the overall tumour mass effect and aggravate intracranial hypertension. The condition of these patients is heavier and complex; thus, it is necessary to strengthen the observations upon the conditions, especially the observation of intracranial hypertension symptoms. The nurse shall inquiry whether the patient has headache, nausea, or vomiting, or not, check whether there is the presence of secondary epilepsy and neurological dysfunction, and observe the changes in consciousness, pupil (a dilated pupil in one side or both sides, a slow or disappearing reflection of light), and in vital signs (heart rate, respiratory depression, and increase in blood pressure) once per hour, so as to early detect the increased intracranial pressure, and take timely and effective measures to reduce intracranial pressure.

When the nurse finds that the patient has aggravated headaches, cognitive impairments or urinary incontinence while visiting the ward, he shall immediately inform the doctor and take hypertonic dehydration drugs plus hormones for rapid intravenous infusion. He shall urgently improve the preoperative preparations for the emergency surgery to remove the tumours. After the operation, the patient is sane, good in spirit and stable in vital signs.

According to the routine nursing of patients after caesarean section and craniotomy, the patient's condition is closely monitored. For patients undergoing preoperative craniotomy, due to factors such as blood loss, hypoxia, and postoperative medication, which may affect foetal growth and vital signs, the foetus's response needs to be monitored at any time. The monitoring of foetal heart and movement is strengthened 4-6 days after operation, and the number of prenatal examinations is increased. The nurse shall instruct the patient to take the left lateral position, explain the significance and methods of the number of foetal movements, and promptly inform the patient and the doctor when the number of conscious foetal movements is reduced, for example less than 10 times of foetal movement within 12hours. Keep blood pressure as stable as possible and choose medication cautiously.

After operation, observe whether the incision is bleeding or oozing. If there is oozing, change dressing in time. The abdominal band of caesarean section is pressed to wrap the incision, which reduces the tension of the incision and is beneficial to the healing of the incision. Observe lochia nature and quantity, keep perineum clean, scrub perineum twice a day to prevent infection. After craniotomy, the external (subcutaneous) drainage tube of bone flap is often place in the incision. Keep the drainage tube unobstructed and properly fixed. The head is properly braked so as to prevent the tube from twisting, pulling and coming out when turning over. Observe the colour and quantity of the drainage fluid. If the drainage fluid changes from dark red to bright red, with a drainage volume >200mL/h, it suggests that intracranial haemorrhage may have occurred. The nurse shall immediately cooperate with the doctor for emergency treatment. After removing the drainage tube, the nurse shall observe whether the incision has exuded, and pay attention to the incision healing.

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