Journal of Clinical and Nursing Research, 2024, Volume 8, Issue 1
http://ojs.bbwpublisher.com/index.php/JCNR
Online ISSN: 2208-3693
Print ISSN: 2208-3685

Postoperative Care for Patients with Hypertensive Intracerebral Hemorrhage

Yajuan Meng*

Ning County Maternal and Child Health Hospital, Qingyang 745200, Gansu Province, China

***Corresponding author:** Yajuan Meng, myj259758@163.com

Abstract: This article summarizes the postoperative care plan for patients with hypertensive intracerebral hemorrhage (HICH). Nursing strategies are analyzed in terms of the level of consciousness, pupil care, vital sign care, temperature care, complication care, and early rehabilitation care, with the goal of providing reference for follow-up care of HICH patients.

Keywords: Hypertension; Cerebral hemorrhage; Nursing plan

Online publication: January 18, 2024

1. Introduction

Hypertensive intracerebral hemorrhage (HICH) is more common among individuals aged 50–70 years, and it is more prevalent among men. The prognosis of most patients is poor. If it is not treated as soon as possible, it can cause cognitive dysfunction and affect the patient's survival. In addition, if the patient's blood pressure is not well-controlled, it can increase the risk of rebleeding, impair the patient's daily living ability, increase the patient's disability rate, and consequently, decrease both their quality of life and overall survival [1]. Postoperative care programs for HICH patients will be analyzed below.

2. Level of consciousness

Changes in the level of consciousness of HICH patients can reflect the progression of the disease. Therefore, the nursing staff must be able to accurately recognize signs such as shallow coma, wakefulness, confusion, and drowsiness in HICH patients. The Glasgow Coma Scale (GCS) can be used to evaluate the patient's state of consciousness. It can also be assessed through pain stimulation, call response, and dialogue response. In addition, the patient's swallowing, coughing, and corneal conditions should be observed, and the risk of brain herniation should be assessed based on the degree of consciousness. Generally, before the onset of cerebral herniation, patients may present symptoms such as irritability, vomiting, and slow pulse. HICH patients have been shown to develop severe disturbances of consciousness after surgery, indicating the risk of postoperative rebleeding and brain herniation. Therefore, the patient's state of consciousness should be monitored closely, and

any abnormalities should be reported to the attending physician immediately for treatment. In a study by Yuan *et al.* [2], multi-sensory awakening interventions were carried out for comatose patients with HICH. Through interventions such as hearing, vision, smell, taste, and touch stimulation, the level of consciousness of comatose patients was effectively improved. In short, proper nursing intervention can promote the outcome of HICH patients and protect their brain function.

3. Pupil care

Pupil changes in HICH patients should be monitored closely as it is an important indicator of postoperative intracranial hemorrhage. Under normal physiological conditions, the pupil should be located in the middle of the eyeball, and its diameter should be between 2 and 5 mm. If the pupil diameter is < 2 mm, it indicates that the patient's pupil is constricted; if the pupil diameter is > 5mm, it indicates that the patient's pupil is dilated. The shape and size of the pupil can be assessed by illuminating it with a flashlight, allowing for the evaluation of the pupil's responsiveness to light reflection. In a study by Fu et al. [3], it was found that preoperative pupil changes are a risk factor for postoperative cerebral edema in HICH patients. Therefore, for those in poor condition after HICH surgery, their pupillary reflex should be observed every 15 minutes. If there are changes in pupil size and light responsiveness, attention should be directed towards the possibility of postoperative bleeding.

4. Vital signs care

Upon HICH surgery, the patients may experience problems such as insufficient blood oxygen supply to the brain tissue and low cerebral blood flow, resulting in abnormal intracranial pressure. Typical symptoms include bradycardia, slow, deep breathing, high blood pressure, etc. In addition, HICH patients may suffer from physical agitation during surgery when their blood pressure is elevated. Additionally, they are susceptible to postoperative intracranial edema, leading to increased intracranial pressure and blood pressure. Therefore, the following vital signs should be monitored: for those with abnormally elevated blood pressure, the blood pressure reduction should be controlled within 20%; patients who are experiencing severe negative emotions should be counseled to ensure that their inner thoughts are expressed to minimize postoperative risks. When the patient experiences mood swings, the changes in the patient's blood pressure, respiratory rate, and heart rate should be monitored. Interventions should be carried out immediately if any abnormalities are found. In addition, the condition of the respiratory tract of HICH patients should be monitored, and sputum suctioning should be performed if necessary. A study found that [4] monitoring the vital signs of HICH patients and carrying out comprehensive nursing interventions can enhance the patient's sleep quality.

5. Body temperature care

An abnormal increase in body temperature may occur 6 hours after HICH surgery, and the body temperature fluctuates greatly within 1 to 2 days after surgery. If no infection occurs during postoperative recovery, the patient's body temperature will return to normal in about 4 days post-surgery. If the patient's body temperature stays >39°C and symptoms of high temperature in the trunk and low temperature in the limbs occur, physical cooling methods can be adopted, such as placing ice packs on the head, neck, armpits, and groin area to reduce the temperature of the brain tissue. If the fever persists for 3-4 days after surgery accompanied by tachycardia and night sweats, oxygen is administered to prevent cerebral edema and intracranial hypertension. Identifying whether the patient has a pulmonary infection and giving symptomatic drugs is necessary. In addition, when

carrying out postoperative physical cooling, it is important to take note of the patient's skin condition to avoid frostbite. The body temperature of patients with high fever should be monitored every 4 hours, and the changes in the body temperature should be recorded. The position of the ice pack should be changed regularly during cooling to prevent frostbite. The patient's temperature should be monitored every 4 hours to avoid cooling too rapidly and causing the patient to shiver. The ice packs should not be placed on sensitive areas like the abdomen and the feet [5].

6. Complication care

6.1. Protection against lung infection

Patients may experience abnormal swallowing function after surgery, leading to symptoms like coughing, which can result in sputum and vomitus blocking the trachea. This situation can induce lung infection and impact the patient's prognosis. Therefore, nurses should prioritize preventive care to minimize the risk of pulmonary infection. (1) Organ incision management: For patients undergoing tracheotomy, the drip method can be used to moisten the airway and facilitate sputum suction. (2) Maintaining a clear respiratory tract: The nurse turns the patient over every 2 hours and gently pats the patient's back during coughing and phlegm expulsion. Back patting should follow the principle of "top to bottom" and "inside to outside" to stimulate expectoration. In a study by Liang et al. [6], 280 HICH patients were taken as a sample and predictive nursing intervention was carried out for patients in the observation group. It was found that the patient's pulmonary infection rate was reduced, and their hospitalization time was shortened. This suggests that carrying out predictive pulmonary infection nursing can promote the patient's recovery.

6.2. Protection from intracranial infection

Drainage tubes are typically used for approximately 3-5 days post-surgery, and in severe cases, patients may require drainage tubes for up to 15 days. Cerebral hemorrhage can impact brain tissue metabolism and cerebrospinal fluid circulation. Cerebral hemorrhage can affect brain tissue metabolism and cerebrospinal fluid circulation. Poor postoperative drainage in HICH patients can increase intracranial pressure and aggravate cerebral hemorrhage. Therefore, the drainage tubes should be monitored to ensure that they do not fall off or get compressed. The patency of the drainage tubes should be evaluated, the amount and color of the drainage fluid of should be recorded and the patient's recovery should be comprehensively evaluated. In a study by Peng [7] *et al.*, the factors of postoperative intracranial infection in HICH patients were analyzed. They found that among patients aged > 60 years, multiple needle punctures, drainage tube contamination, and drainage tube drainage > 3 days were high-risk factors of postoperative intracranial infection. Sterility and comprehensive care during the operation can reduce the risk of intracranial infection.

6.3. Upper gastrointestinal bleeding prevention

HICH patients often have stress ulcers after surgery, which can increase the risk of upper gastrointestinal bleeding. Therefore, when caring for HICH patients after surgery, the color of the patient's excrement and vomitus should be observed and the condition of upper gastrointestinal bleeding should be evaluated. Psychological intervention should be carried out to ease the negative emotions of the patients and enhance patient compliance. If the patient's gastric juice is brown or stool-colored, the attending physician should be informed of this situation immediately, and the amount of bleeding should be assessed based on the fluctuation of the patient's vital signs. Subsequently, norepinephrine should be administered as prescribed, and the gastric tube should be clamped for 2 hours; if the patient has massive bleeding, a blood transfusion should be

performed immediately, along with fluid replenishment and anti-shock treatment. In a study by Yang *et al.* [8], 86 HICH patients were used as samples to explore risk factors for upper gastrointestinal bleeding and. They found that age, pathological signs, cerebral herniation, cerebral hemorrhage location, cerebral hemorrhage volume, blood glucose indicators, and GCS scores were all associated with HICH. The patients are also at risk of secondary upper gastrointestinal bleeding. Besides, they also found that the incidence of upper gastrointestinal bleeding can be reduced through preventive nursing intervention.

7. Physical rehabilitation care

7.1. Good limb placement

Assisting patients with limb placement can protect limb function, achieve anti-spasmodic effects, and prevent complications such as joint deformity, limb edema, and muscle atrophy.

7.2. Physical exercise

Sitting and walking training for HICH patients: The first sitting training after surgery involves raising the headboard by 30° and maintaining a seated position for 30 minutes. After some time, the headboard can be lowered to 10° elevation every 2 hours until the patient can sit upright at a 90° angle for 30 minutes. After performing that for some time, the patient should be encouraged to sit without support. When the patient is able to sit at the edge of the bed without support, standing training should be carried out, with the standing time increased over time. When the patient can stand stably for 10–15 minutes, encourage them to carry out walking training, starting from standing still, until the recovery period to restore autonomous walking function. In a study by Yu *et al.* [9], staged rehabilitation care was carried out for HICH patients. They found that under the intervention of rehabilitation exercises, the patient's neurological deficit scores were reduced, and their satisfaction was improved, indicating that rehabilitation care can promote the recovery of HICH patients.

7.3. Active and passive movements

HICH patients insist on active and passive exercise after surgery, which can optimize the intracranial blood supply, increase cerebral blood flow, correct the problem of insufficient cranial blood and oxygen supply, and also exert the effect of removing blood stasis and activating blood circulation, which is beneficial to preventing muscle atrophy. In addition, HICH provides patients with joint massage services in the early stage after surgery, which can stimulate lymph circulation, prevent joint deformities, and enhance body movement functions.

8. Swallowing care

Swallowing exercises can prevent disuse atrophy of the swallowing muscles and enhance muscle coordination and flexibility, thereby relieving swallowing disorders, restoring damaged nerve function, and reducing the risk of accidental swallowing. Consequently, the patients' quality of life is improved and the financial burden on their families is lightened. During postoperative care, medical staff can guide the patient to chew, bulge, and suck correctly. The patient should be given a liquid diet at the initial postoperative stage. When the patient is able to swallow independently, he/she can then gradually transition to regular food to strengthen the swallowing function. However, the patient should also take care of their oral hygiene to prevent infection. In a study by Zhang *et al.* [10], swallowing rehabilitation training was carried out in HICH patients, which improved the patients' swallowing function, indicating that early postoperative swallowing rehabilitation training can promote the recovery of a patient's swallowing function.

9. Psychological care

HICH patients will experience a decline in their self-care ability, which might make them stressed. In addition, the rehabilitation period is long, and some patients may not see much results during the training. They may experience despair, depression, or even emotional disorders and refuse subsequent medical intervention. Therefore, medical staff should pay attention to the emotional fluctuations of HICH patients, share examples of successful treatment, encourage patients to adhere to rehabilitation training, and answer their questions to assure them and promote recovery. In a study by Wang et al. [11], 90 HICH patients were taken as samples and psychological intervention was carried out for patients in the observation group. They found that psychological care can regulate HICH patients' emotions and enhance their living ability and quality of life. In a study by Dong *et al.* [12], they carried out psychological intervention during the admission, treatment, and rehabilitation stages for HICH patients. They found that psychological care can enhance patients' confidence in disease resistance and improve their compliance with the treatment.

10. Nursing precautions

HICH patients are very likely to suffer from hemiplegia, dizziness, vomiting, and disturbance of consciousness after surgery, and most postoperative complications have a rapid onset. Therefore, the symptoms should be controlled before the patient develops cerebral herniation to enhance rescue efficiency and reduce the mortality rate. During the postoperative recovery period of HICH patients, it is necessary to create a quiet and comfortable ward environment with suitable lighting, temperature, and humidity to avoid adverse stimulation that affects the patient's postoperative recovery. It is important to regulate the patient's blood pressure and prevent further bleeding during the post-operative period. If the blood pressure continues to rise, sodium nitroprusside can be administered to control the blood pressure. The solution should be infused continuously and uniformly to the blood pressure from fluctuating. Besides, the patient's spontaneous breathing should be assessed after surgery, and low-flow oxygen should be given if necessary to prevent rapid brain tissue metabolism, which causes insufficient oxygen supply in the brain tissue, thereby reducing brain cell apoptosis caused by hypoxia. However, it should be noted that although oxygen therapy can increase blood oxygen saturation, it is crucial to not administer pure oxygen continuously to avoid oxygen poisoning in HICH patients.

11. Summary

HICH is a common critical illness that, if not treated promptly, can jeopardize the patient's life and health. Surgery is considered the primary treatment option for HICH patients and has the potential to enhance patient survival rates. Nevertheless, the patients need to be given proper postoperative care, their conditions need to be monitored, and diversified nursing services must be provided to reduce postoperative complications. HICH postoperative care plans in China are yet to be standardized. Therefore, medical workers should strive to enhance the quality of HICH postoperative care and improve the prognosis of HICH patients.

Disclosure statement

The author declares no conflict of interest.

References

[1] Hong X, Li J, 2021, Research on the Impact of Preventive Care Based on the PDCA Cycle Model on Postoperative Deep Vein Thrombosis in Elderly Patients with HICH. Knowledge on Prevention and Treatment of Cardiovascular Disease, 11(28): 72–74.

[2] Yuan Y, Ma M, Qi Z, 2020, Effect of Multi-Sensory Awakening Care on Consciousness Awakening and Neurological Function Recovery in Comatose Patients After HICH. Clinical Medical Research and Practice, 5(34): 167–169.

[3] Fu H, Lu G, Hong X, et al., 2020, Analysis of Risk Factors for Early Cerebral Edema Formation After Hypertensive Cerebral Hemorrhage. Scientific Health Care, 2020(12): 116–117.

[4] Yan Y, Chen M, Wang M, 2022, Application Effect of Comprehensive Nursing Intervention in the Sleep Disorder Care of HICH Patients. World Journal of Sleep Medicine, 9(11): 2161–2163.

[5] Lu W, 2021, Research Progress on the Nursing Value of Hypertensive Cerebral Hemorrhage. Health Care Guide, 4(14): 293.

[6] Liang K, Li D, Yao Y, et al., 2021, Effect of Predictive Nursing Intervention on Pulmonary Infection and Recovery in ICU HICH Patients. International Journal of Nursing, 40(10): 1899–1902.

[7] Peng Y, 2018, Analysis of Related Factors and Nursing Care of Intracranial Infection After Minimally Invasive Puncture for Hypertensive Cerebral Hemorrhage. Colorectal and Anal Surgery, 24(2): 27.

[8] Yang H, Xu H, Yang J, et al., 2018, Analysis of Risk Factors and Nursing Strategies for Hypertensive Cerebral Hemorrhage Complicated by Upper Gastrointestinal Bleeding. Chinese General Medicine, 16(3): 501–503.

[9] Yu T, Wen J, Li M, et al., 2021, Research on the Impact of Staged Rehabilitation Nursing on Patients' Neurological Recovery After Hypertensive Cerebral Hemorrhage. Chinese and Foreign Medical, 40(5): 148–150.

[10] Zhang Q, 2021, Research on the Application of Rehabilitation Nursing in Patients with Early Postoperative Swallowing Dysfunction in Patients with Hypertensive Cerebral Hemorrhage. Heilongjiang Traditional Chinese Medicine, 50(2): 358–359.

[11] Wang P, Xiang Q, Cheng L, 2022, The Impact of Psychological Nursing and Health Education on Patients with Hypertensive Cerebral Hemorrhage. Psychological Monthly, 17(1): 143–144 + 207.

[12] Dong C, 2022, The Impact of Psychological Nursing and Health Education on Patients with Hypertensive Cerebral Hemorrhage. Chinese Science and Technology Journal Database (Citation Edition) Medicine and Health, 4(8): 42.