Effect of Standardized ICU Emergency Care on Thetherapeutic Effect of Mechanical Thrombectomy Inpatients with Acute Cerebral Infarction

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Abstract: Acute cerebral infarction is a severe cerebrovascular disease characterized by high morbidity, disability and mortality. Mechanical thrombectomy has been widely used worldwide as an effective means for the treatment of large vessel occlusion in acute cerebral infarction. However, the success of the operation not only depends on the physician's operation skills, but also is closely related to the level of emergency care in the ICU. As an important part of the modern medical system, ICU standardized emergency care aims to improve the treatment effect of patients, reduce the incidence of complications, and promote the early recovery of patients through a standardized and scientific nursing process.
***Keywords*:** standardized emergency care in ICU, mechanical thrombectomyfor acute cerebral infarction, curative effect; impact analysis

1. Introduction

Acute cerebral infarction is a kind of cerebrovascular disease with stand onset and rapid progression, Mechanical thrombectomy, as the firstchoice for the treatment of large blood vessel occlusion, has the advantages of short time and significant curative effect. However, the success of the operation not only depends on the technical operation, but also closely related to the emergency care in the ICU. Patients with standardized emergency care showed better performance in postoperative recovery, prevention of complications, and neurological recovery. Therefore, this paper aims to provide a valuable reference for clinical practice through the important role of ICU standardized emergency care in improving mechanical thrombectomy patients for acute cerebral infarction.

2. Definition of mechanical embolectomy for acute cerebral infarction

Mechanical embolectomy for acute cerebral infarction is an advanced treatment technique for acute cerebral infarction. Through minimally invasive intervention, this technique uses special embolectomy devices, such as embolectomy stent or aspiration catheter, to directly act on the blocked blood vessels in the brain. Through precise operation, the doctor sends the device to the thrombus, and then grabs or sucks the thrombus to separate it from the blood vessel and take it out, thus quickly restoring the patency of the blood vessel. This process aims to quickly open occluded blood vessels, save brain cells on the verge of necrosis, reduce the disability rate and mortality rate of patients, and establish a good blood flow foundation for patients' postoperative recovery.

3. Characteristics of Standardized Emergency Nursing in ICU

3.1 Content of Standardized Emergency Nursing

The application of standardized emergency nursing in mechanical thrombectomy for acute cerebral infarction encompasses a comprehensive care process from preoperative to postoperative stages. Preoperatively, the nursing team must conduct thorough preparations and assessments, including a complete understanding of the patient's condition, monitoring vital signs, and predicting surgical risks to ensure that the patient is suitable for surgery. Intraoperatively, nurses need to closely collaborate with the surgical team by providing precise monitoring and support — maintaining stable vital signs and ensuring smooth operation of surgical instruments and equipment. Postoperatively, nursing focus shifts towards rehabilitation guidance and care for patients, which includes pain management, prevention of complications, nutritional support, and early functional exercises aimed at promoting rapid recovery while minimizing postoperative complications and enhancing overall treatment efficacy.

3.2 Characteristics of ICU Nursing

ICU nursing demonstrates unique characteristics in caring for patients following mechanical thrombectomy for acute

cerebral infarction. It emphasizes real-time monitoring and assessment through continuous observation of key indicators such as vital signs, consciousness level, and neurological function to promptly detect any changes in condition that can inform treatment decisions. ICU nursing advocates for personalized care plans tailored according to each patient's specific medical conditions, physical status, and treatment needs to ensure targeted effectiveness in nursing interventions. Prevention and management of complications are core tasks within ICU nursing; meticulous care practices combined with stringent infection control measures effectively reduce occurrences such as postoperative infections, pressure ulcers (PU), deep vein thrombosis (DVT), thereby facilitating quicker patient recovery.

4. Analysis on the Impact of Standardized Emergency Nursing on Treatment Outcomes for Patients Undergoing Mechanical Thrombectomy due to Acute Cerebral Infarction

4.1 Influence of Nursing on Patient Vital Signs

4.1.1 Stability Parameters: Blood Pressure, Heart Rate & Respiration

In the course of ICU nursing practice it is crucial to maintain stability among parameters like blood pressure (BP), heart rate (HR), respiration rates etc., as they are essential indicators reflecting patient health status during critical periods post-surgery. Nurses must vigilantly monitor these key metrics, implementing timely interventions when necessary, thus preventing drastic fluctuations. For blood pressure regulation, accurate medication administration alongside fluid balance maintenance ensures values remain within acceptable ranges, guaranteeing adequate perfusion both cerebrally & systemically. Continuous heart rate surveillance aids detection regarding arrhythmias or other abnormalities allowing prompt action safeguarding cardiac functionality. Furthermore maintaining respiratory stability plays an integral role against hypoxemia or carbon dioxide retention, methods such as ventilatory assistance via respirators help secure effective pulmonary performance throughout this phase. Consequently through these detailed caregiving strategies, our dedicated ICU teams strive diligently toward creating a safe environment conducive towards optimal recuperation outcomes.

4.1.2 Assessment & Improvement of Neurological Functionality

Nursing assumes an indispensable role throughout rehabilitation journeys faced by individuals suffering from acute strokes particularly concerning stabilization efforts surrounding their life-signs along with restoration initiatives targeting neurological functionalities impacted by injury sustained during episodes experienced priorly mentioned above. Through diligent oversight coupled alongside attentive caregiving approaches practitioners can swiftly identify irregularities present amongst BP/HR/RR readings enabling corrective actions taken accordingly ensuring physiological parameters stay aligned favorably supporting normal operations across brain/body systems alike simultaneously fostering improved prospects related directly back into cognitive/motor capabilities exhibited thereafter too! Specialized evaluations assessing consciousness levels/language abilities/mobility skills not only facilitate accurate clinical judgments but also guide formulation processes behind individualized rehab programs designed specifically geared towards gradual recoveries ultimately enhancing quality-of-life experiences enjoyed moving forward.

4.2 Preventive Role of Nursing Against Patient Complications

4.2.1 Prevention of Pressure Ulcers, Deep Vein Thrombosis Respiratory Infections

To prevent pressure ulcers effectively, nursing staff employ regular repositioning techniques along with specialized pressure-relieving cushions that help distribute body weight evenly — thereby reducing skin damage risks. In terms of DVT prevention strategies include encouraging early mobilization among patients alongside limb massages or anticoagulant medications which enhance circulation while lowering thrombus formation likelihoods. For respiratory infections prevention efforts involve strict adherence to aseptic protocols aimed at keeping airways clear while bolstering oral hygiene practices — all designed to minimize pathogen exposure opportunities thus effectively averting pulmonary infection occurrences. These comprehensive nursing interventions provide robust support for postoperative recovery.

4.2.2 Prevention Strategies Against Postoperative Complications Such As Hemorrhagic Transformation & Vascular Reocclusion

In the postoperative care of patients with acute cerebral infarction, the prevention of complications is the key to improve the treatment effect. Through fine management and close observation, the nursing team effectively prevents and controls potential risks such as bleeding transformation and vascular re-occlusion. For bleeding transformation, nursing staff will closely monitor the coagulation function of patients, reasonably adjust the dose of anticoagulant drugs, and pay attention to

whether there is bleeding tendency to ensure the safety of treatment. For vascular reocclusion, the nursing team will actively promote a healthy lifestyle, such as smoking cessation and alcohol restriction, reasonable diet, and regular rehabilitation training, to improve vascular status and reduce the risk of reocclusion. Through these professional preventive measures, nursing provides strong support for patients' smooth recovery after surgery.

4.3 Promoting Patient Rehabilitation Progress Through Nursing Care

In the rehabilitation process of patients with acute cerebral infarction, nursing plays an indispensable role in promoting it. By developing a personalized functional exercise program, the nursing team encourages and guides patients in gradual limb activities, which not only helps to restore muscle strength and joint flexibility, but also promotes the remodeling of neural function and improves the patient's self-care ability. At the same time, the guidance of nutritional support is also an important part of nursing, nursing staff will make a scientific diet plan according to the nutritional needs and digestive ability of patients, to ensure that patients intake enough protein, vitamins and minerals, to provide sufficient material basis for body repair.

5. Recommendations Regarding Treatment Approaches for Patients Undergoing Mechanical Thrombectomy Due to Acute Cerebral Infarction

In the future development of mechanical thrombectomy for acute cerebral infarction, developing more efficient and safer thrombectomy devices will be an important direction. The new generation of thrombectomy stent or suction system should have stronger grip and more flexible operation to deal with various complex thrombosis conditions, improve the success rate of surgery and reduce the risk of complications. These new devices need to be rigorously clinically tested and verified to ensure their safety and effectiveness. At the same time, the development of personalized surgical plan is also the key to improve the surgical effect. Doctors should comprehensively consider the surgical path, anesthesia method and anti-coagulation strategy according to the specific conditions of the patient, such as the location, size and vascular conditions of the thrombosis. Through fine preoperative evaluation and planning, the most suitable surgical plan is tailored for patients. This will help to reduce surgical trauma, reduce the complication rate and promote rapid recovery after surgery.

6. Conclusion

In conclusion, standardized emergency care in ICU plays a vital role in the treatment of patients with mechanical thrombectomy for acute cerebral infarction. Through the implementation of standardized preoperative preparation, intraoperative cooperation, postoperative nursing and rehabilitation guidance, the treatment effect of patients can be significantly improved, the incidence of complications can be reduced, and the recovery of neurological function and the quality of life can be improved. The results not only provide strong evidence support for the application of standardized emergency care in ICU in patients with mechanical thrombectomy of acute cerebral infarction, but also provide a valuable reference for clinical practice. In the future, we will continue to deeply study the relevant contents of standardized emergency care in ICU, in order to provide patients with more high-quality and efficient nursing services, and promote the continuous development of medical undertakings.

References

[1] Xu Lingyun. The clinical effect of prehospital emergency care for acute cerebral infarction and its influence on the success rate of rescue [J]. The Electronic Journal of Integrated Traditional Chinese and Western Medicine in Cardiovascular Diseases, 2023, 11(17): 67-69+51.

[2] Duan Beibei. Application of improved emergency care pathway combined with standardized care in intravenous thrombolysis of rt-PA in the early stage of acute cerebral infarction [J]. China Medical Herald, 2023, 20 (15): 180-183.

[3] Xu Yuanyuan. To optimize the effect of prehospital emergency care procedures in acute cerebral infarction[J]. Electronic Journal of Integrated Chinese and Western Medicine, 2023, 11 (09): 65-67.

[4] Luo Shuhua, Chen Ziyan, Liu Baoyi. Application of optimized emergency care in patients with acute ischemic cerebral infarction[J]. Jilin Medical, 2023, 44 (01): 231-233.

[5] Pan Xiaozhen, Yang Qiulan. Impact of optimizing emergency care process on first aid efficiency and quality of life in patients with acute cerebral infarction [J]. Journal of Yichun College, 2022, 44 (09):73-75+84.