

Study on the Clinical Effectiveness of Comprehensive Anesthesia Nursing in Clinical Anesthesia Practice



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Abstract: Objective: to investigate the application mode and effect of a comprehensive anesthesia nursing program in clinical anesthesia patient care intervention. Methods: 40 cases of surgical treatment patients admitted to our hospital during the period from December 2022 to December 2023 were selected as research subjects, and were divided into 20 cases of the reference group and 20 cases of the experimental group according to the principle of random allocation. For the patients in the reference group, the conventional nursing mode was implemented, and for the patients in the experimental group, the comprehensive anesthesia nursing mode was implemented. The anesthesia time and operation time of the two groups were compared. Results: the anesthesia time of patients in the experimental group was (9.5±4.0) min, which was shorter than the anesthesia time of patients in the reference group (14.3±4.3) min; the operation time of patients in the experimental group was (195.5±13.6) min, which was shorter than the operation time of patients in the reference group (234.7±12.1) min, and the difference between the two groups was significant, with a difference of $P < 0.05$. Conclusion: When implementing clinical anesthesia in patients undergoing surgery, it is necessary to formulate a comprehensive anesthesia care model. Conclusion: when implementing clinical anesthesia, it is necessary to develop a comprehensive anesthesia nursing program to enhance the nursing effect and improve the postoperative recovery of patients.

Keywords: clinical anesthesia; comprehensive anesthesia nursing; anesthesia time

With the progress of modern medical technology and the improvement of patients' safety awareness, the quality and effect of clinical anesthesia have become one of the important criteria for evaluating the success of surgery. Anesthesia requires not only technical precision but also comprehensive and meticulous nursing care to ensure the safety and comfort of patients during the entire surgical process. The comprehensive anesthesia care model shows unique advantages in enhancing patient satisfaction, reducing complication rates, and optimizing resource utilization due to its systematic and multi-faceted care strategy. With the development of healthcare services in the direction of higher quality and more personalized, it is necessary to explore the application of integrated anesthesia

care in clinical anesthesia, assess the potential impact of integrated care models on improving anesthesia safety, enhancing patient comfort, and facilitating patient recovery, and provide references for relevant policy formulation, to ultimately advance the development of the discipline of anesthesiology and progress the quality of patient care (Ye, 2023). In this regard, the present study included 40 cases of surgical treatment patients admitted to our hospital between December 2022 and December 2023 as research subjects to investigate the application and effect of integrated anesthesia care programs in clinical anesthesia patient care intervention.

1. Information and Methods

1.1. General information

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In this study, 40 cases of surgical treatment patients admitted to our hospital during the period from December 2022 to December 2023 were selected as research subjects, and were divided into 20 cases in the reference group and 20 cases in the experimental group according to the principle of random allocation. In the reference group, 12 cases were male and 8 cases were female; their ages ranged from 21 to 54 years old, with an average of (34.3 ± 5.1) years old. In the experimental group, there were 13 males and 7 females; their ages ranged from 22 to 57 years old, with an average of (35.9 ± 5.3) years old. The difference in the basic information of the patients in the two groups was not significant, $P > 0.05$.

1.2. Methods

1.2.1. Reference group

For the patients in the reference group, the conventional nursing mode was implemented. The anesthesia medication was checked before the operation, and the patient's vital signs were closely detected.

1.2.2. Experimental group

For patients in the experimental group, the comprehensive anesthesia nursing mode is implemented.

(1) Preoperative care

① Assessment and preparation

In the process of preparing patients for anesthesia and surgery, the nursing staff needs to conduct an in-depth analysis of the patient's overall health status, covering the history of chronic diseases and drug use records, but also a comprehensive assessment of the patient's current physiological state. By taking a thorough history, the healthcare team can capture any critical information that may affect the anesthesia plan, thus avoiding the potential negative impact of chronic conditions such as heart disease, diabetes, and high blood pressure on the procedure. The patient's current medications and how these may interact with anesthesia medications need to be meticulously combed through to circumvent any risks that could lead to adverse reactions. The patient's allergy history is

explored to prevent unexpected allergic reactions and avoid medications that may cause allergies. In addition, a comprehensive physical examination further reveals the patient's current health status, including auscultation of the heart, functional assessment of the lungs, and other necessary tests of physiologic function. This comprehensive examination ensures that the patient's physical condition matches the surgical requirements and provides a basis for developing an individualized anesthetic plan (Fan, 2020).

In addition to physical health, a patient's mental health is equally important. Pre-operative emotional and psychological conditions directly affect a patient's preparation for and recovery from surgery. Therefore, the care team also assesses the patient's emotional state, engages in open dialog with the patient, and listens to their concerns and expectations. Psychological support and timely interventions can significantly reduce patients' anxiety and help them build confidence in the upcoming surgery, making patients physically and psychologically prepared to enter the operating room in the best possible condition and laying the foundation for a successful surgery.

② Health Education

The goal of education is not only to provide information but also to empower patients to become active participants in the treatment process. Detailed explanations of the surgical procedure and choice of anesthesia methods not only eliminate confusion but also reduce anxiety due to uncertainty. The medical team makes complex medical information easy to understand by utilizing visual aids such as diagrams, models, and multimedia presentations. In addition, the team provides practical advice on postoperative recovery, such as guidance on pain management, wound care, and daily activities. To enhance education, patients may receive checklists, pamphlets, or guides that have been developed for easy learning. The process of health education is also a two-way communication process, encouraging patients to ask questions, express concerns, and share their expectations and needs, providing patients with more

personalized guidance, building and strengthening a trusting relationship between doctor and patient, and making patients feel that they are supported and understood (Zheng, 2019). Helping patients prepare psychologically for surgery promotes successful surgery and rapid recovery, and improves patient satisfaction and surgical outcomes.

③ Fasting and medication

Routine fasting rules that require patients to avoid eating for a certain period before surgery may reduce the risk of intraoperative aspiration pneumonia, which may occur when patients lose their protective reflexes due to the effects of anesthesia. Solid foods need to be stopped for an extended period before surgery to ensure that there is no residue in the stomach, thereby reducing the risk of reflux and aspiration of food contents. Restriction of fluids for a shorter period before surgery maintains the patient's hydration status while reducing the amount of gastric contents. Preoperative medication management is particularly complicated by the fact that some patients take anticoagulant medications (Yao, 2018). The pros and cons of continuing or suspending anticoagulants need to be carefully weighed, for which the patient's blood viscosity as well as potential bleeding risk need to be assessed. The healthcare team must develop the most appropriate medication management plan, taking into account the type of surgery, bleeding risk, and the patient's health status. Meanwhile, the use of prophylactic antibiotics has become part of the preoperative routine to prevent postoperative infections. The choice of antibiotics needs to be based on the type of bacteria likely to be encountered at the surgical site as well as local antibiotic resistance patterns. They are usually administered within 30 to 60 minutes before the start of surgery to ensure that effective antimicrobial concentrations are achieved in the tissues. Nursing staff also needs to educate patients about the importance of preoperative fasting, require compliance with fasting instructions, and review all medications currently being used by the patient to adjust their utilization schedule.

(2) Intraoperative care

① Intraoperative monitoring

Continuous and close monitoring of the patient's vital signs, such as heart rate, blood pressure, respiratory rate, oxygen saturation, and body temperature. Monitoring of heart rate and blood pressure can help assess the patient's circulatory status and detect circulatory overload or insufficiency promptly. Monitoring of oxygen saturation, on the other hand, is a key indicator for assessing the patient's oxygenation status, which is particularly important to maintain good oxygenation during general anesthesia. Monitoring of respiratory rate and pattern assesses the patient's respiratory function and ensures adequate ventilation. Meanwhile, body temperature is monitored to prevent patients from hypothermia or hyperthermia affecting surgical outcomes and recovery (Wang, 2014).

② Safety prevention and control

Ensuring that the patient's position is correct and safe is the key to preventing pressure injuries, especially during prolonged surgeries where improper positioning may lead to nerve damage or poor blood flow. The use of appropriate cushions and repositioning of the operating table can effectively minimize this risk. In addition, maintaining an open airway for the patient is another core task during anesthesia, especially under general anesthesia when the patient is unable to maintain an open airway on his or her own. The anesthesia team will utilize a variety of airway management tools, such as laryngeal masks and tracheal intubation, to ensure an open and unobstructed airway. At the same time, the respiratory situation will be closely monitored, and any possible respiratory problems will be addressed promptly, so that the patient will be protected from intra-operative physical and physiological damages, and the surgery will be carried out smoothly.

③ Pain and anesthesia management

The anesthesia team accurately adjusts the anesthetic dosage according to the specifics of the surgery and maintains a high level of alertness to possible complications during the anesthesia

process. This involves detailed planning of the anesthesia regimen before surgery and adjusting the drug dosage according to the patient's physiological response throughout the procedure. Effective pain management not only reduces patient discomfort but also promotes postoperative recovery (Hou, 2020). In addition, timely detection and management of anesthesia-related complications, such as cardiac arrhythmia, abnormal blood pressure, or respiratory depression, are key to patient safety. For this reason, anesthesiologists need to use professional knowledge and techniques to conduct close monitoring and timely intervention to ensure patient safety and comfort throughout the entire surgical process.

(3) Postoperative care

① Observation of recovery

During the resuscitation period after surgery, it is crucial to closely observe the patient's recovery. In the resuscitation room, the medical team will focus on monitoring the patient's level of consciousness, pain level, and various vital signs such as heart rate, blood pressure, respiratory rate, and oxygen saturation. The purpose of this phase of monitoring is to ensure that the patient recovers smoothly from anesthesia and that any potential complications due to surgery or anesthesia are promptly identified and addressed. Observation of the level of consciousness helps to assess the recovery of the patient's neurological function, while pain management is used to reduce the patient's discomfort and ensure his or her comfort through appropriate medication. In addition, continuous vital signs monitoring provides real-time data about the patient's physiologic status, which facilitates rapid clinical decision-making by the healthcare team (Cai et al., 2024).

② Pain management

Pain management occupies a central position in patients' clinical anesthesia care and is a dynamic and continuous process. In pain management, the selection of assessment tools is crucial, such as visual analog scores (VAS) and numeric rating scales (NRS), which quantify the intensity of pain, and pain diaries and descriptions of pain characteristics help

depict the nature and pattern of pain, according to which analgesic regimens can be selected. In terms of medication, nonsteroidal antiinflammatory drugs (NSAIDs) and opioids are the most commonly used options for the relief of moderate to severe pain. For specific types of pain, such as neuropathic pain, antidepressants or anticonvulsants need to be added. The use of local anesthetics, such as intrathecal administration or nerve blocks, provides effective pain relief by acting directly on the source of pain (Jing, 2024). As pain management progresses, drug response monitoring needs to be strengthened. Regular assessment of medication efficacy and side effects and, if needed, dose adjustments or medication switching are critical to ensure pain control while minimizing side effects. In addition, pain management includes non-pharmacological treatments such as hot and cold packs, physical therapy, relaxation training, and cognitive-behavioral therapy, which can be combined with medications to provide more comprehensive pain control. Enhanced pain management not only reduces patients' physiological discomfort but also facilitates the regulation of patients' emotional states and meets the needs of different patients.

③ Physiological function recovery

Recovery of physiological function is an important part of postoperative care, which can reduce postoperative complications and accelerate patients' ability to return to daily life. The medical team, under the premise of ensuring patient safety, encourages patients to perform bedside activities as early as possible, such as sitting, standing, and slow walking, to promote blood circulation and prevent the formation of deep vein thrombosis, and at the same time, it is conducive to the restoration of intestinal peristalsis and the reduction of intestinal dysfunction in the postoperative period. Breathing exercises play a crucial role in preventing postoperative respiratory complications. By instructing patients to execute correct deep breathing and coughing techniques, medical personnel help patients remove airway secretions and prevent

infections, as well as improve the ventilation function of their lungs and prevent the occurrence of pulmonary atelectasis. To fully facilitate the recovery of physiological functions, the care team also needs to design a personalized recovery plan that includes dietary management, hydration, nutritional support, and possibly physical therapy, taking into account the patient's overall condition and type of surgery. Appropriate nutritional supplementation can provide the necessary energy and materials for the body to repair itself, while physical therapy can restore muscle function and joint flexibility (Lu, 2024).

④ Discharge instructions

Before the patient is discharged from the hospital, the healthcare team will provide comprehensive health education on proper wound care to prevent infection and promote healing, provide mobility instructions to help the patient gradually return to daily activities, avoid wound strain or other complications, and accurately identify possible signs of health problems. In addition, follow-up visits will be arranged to continually monitor the patient's recovery and make timely adjustments to the treatment plan, to help patients and their families understand the key elements of postoperative care, and to ensure that a good level of care continues to be maintained even at home.

1.3. Observation indicators

The anesthesia time and operation time of the two groups of patients were compared.

1.4. Statistical processing

For the results obtained in this study, SPSS22.0 software was used to carry out statistics and analysis, for the measurement data, ($\pm s$) was used to express, t-test was applied, and if $P < 0.05$, the difference was significant and statistically significant.

2. Results

The anesthesia time of patients in the experimental group was (9.5 ± 4.0) min, which was shorter than the anesthesia time of patients in the reference group (14.3 ± 4.3) min; the operation time of patients in the experimental group was (195.5 ± 13.6) min, which was shorter than the operation time of

patients in the reference group (234.7 ± 12.1) min, and the difference was significant and $P < 0.05$ between groups.

3. Discussion

In the clinical anesthesia of patients, the nursing work is full of challenges, and the requirements for professional knowledge and careful care ability are relatively high, which need to accurately assess the physiological and psychological responses of patients, and respond quickly and accurately in emergencies. Patients may have unexpected reactions during anesthesia, such as allergic reactions or cardiovascular events, which require a high degree of alertness and emergency management skills on the part of nursing staff. Nursing staff must also provide continuous monitoring of the patient, assess the depth of anesthesia, detect any abnormalities promptly, and be able to manage unexpected anesthetic complications. The requirements of nursing care are not only limited to the precision of technical operation but also need to provide meticulous care for the patient's emotions, especially in preoperative and postoperative care, to be able to effectively reduce the patient's anxiety and fear and to build up the patient's sense of trust. In the preoperative period, in-depth communication is needed to understand the patient's concerns and provide the necessary psychological support. In the postoperative period, it is necessary to continue to closely observe the physiological and psychological state of the patient, provide pain management at the right time, and help the patient return to normal life as soon as possible through recovery care. The integrated care model shows remarkable effectiveness in clinical anesthesia with its comprehensive nature. Through teamwork, the work of anesthesiologists, surgeons, and nursing staff is closely integrated to ensure the consistency and effectiveness of care. Preoperative assessment and psychological preparation, strict intraoperative monitoring, as well as postoperative pain management and physiological function training, all nursing aspects are closely integrated to optimize the

overall treatment experience of the patient, reduce the incidence of complications, enhance the safety and comfort of the patient, improve the efficiency and effectiveness of nursing care, and accelerate the recovery process of the patient.

In this study, for patients in the reference group, the conventional nursing model was implemented, and for patients in the experimental group, the comprehensive anesthesia nursing model was implemented. According to this study, the anesthesia time of patients in the experimental group was (9.5±4.0) min, which was shorter than the anesthesia time of patients in the reference group (14.3±4.3) min; and the operation time of patients in the experimental group was (195.5±13.6) min, which was shorter than the operation time of patients in the reference group (234.7±12.1) min, and the difference between the groups was significant, with a difference of $P < 0.05$. When the comprehensive nursing intervention was implemented for patients, the detailed nursing care mode was carried out to accelerate the recovery process. When implementing comprehensive nursing interventions for patients, detailed preoperative assessment and preparation were carried out to ensure that the medical and psychological status of patients was optimized, thus reducing preoperative anxiety and improving the success rate of surgery. Intraoperative close monitoring and careful safety prevention and control measures can reduce the risk to patients during surgery and protect their life safety. In addition, targeted pain management strategies are conducive to controlling patients' postoperative discomfort and promoting rapid recovery. Postoperative physiological function recovery training for patients further reduces the risk of pulmonary complications and accelerates the pace of patient recovery. Discharge guidance can also be provided before patients are discharged from the hospital, enabling patients and their families to continue appropriate care at home, reducing the likelihood of postoperative complications, improving the overall quality of recovery, and improving the overall treatment experience for patients.

In summary, when implementing clinical anesthesia for patients undergoing surgical treatment, a comprehensive anesthesia care plan needs to be developed to enhance the effectiveness of care and improve patients' postoperative recovery.

Conflict of Interest

The authors declare that they have no conflicts of interest to this work.

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