Scientific Research Publishing

Journal of Cancer Therapy, 2023, 14, 409-415
https://www.scirp.org/journal/jct
ISSN Online: 2151-1942
ISSN Print: 2151-1934

The Application of Forward Control Nursing in Anesthesia, Recovery, and Rehabilitation of Thoracoscopic Lung Cancer Radical Surgery

Wanqiu Gong*, Lan Xie#

The Anesthesia Operating Room of Cancer Hospital Affiliated to Sun Yat-sen University, Guangzhou, China
Email: #xielan@sysucc.org.cn

How to cite this paper: Gong, W.Q. and Xie, L. (2023) The Application of Forward Control Nursing in Anesthesia, Recovery, and Rehabilitation of Thoracoscopic Lung Cancer Radical Surgery. *Journal of Cancer Therapy*, **14**, 409-415.
https://doi.org/10.4236/jct.2023.1410034

Received: September 25, 2023
Accepted: October 21, 2023
Published: October 24, 2023

Abstract

Objective: To explore the clinical application effect of formulating the operating room nursing work procedure sheet for elderly lung cancer patients in thoracoscopic radical surgery. **Methods:** A total of 85 elderly patients with lung cancer treated in our hospital from May 2022 to May 2023 were included as the study population for this research. They were divided into a study group of 42 cases and a regular group of 43 cases. The regular group of elderly patients received routine nursing care, while the study group of elderly patients was provided with the operating room nursing care work procedure sheet. The surgical duration, intraoperative blood loss, time to mobilization, and postoperative complication rate were compared and analyzed between the two groups. **Results:** Compared to the regular group, the study group had significantly shorter surgical duration and time to mobilization, as well as less intraoperative blood loss ($P < 0.05$). The overall incidence of postoperative complications in the study group (4.76%) was significantly lower than that in the regular group (19.05%) ($P < 0.05$). **Conclusion:** Formulating the operating room nursing work procedure sheet for elderly lung cancer patients can effectively improve surgical efficiency, reduce the incidence of postoperative complications, and promote patient prognosis in thoracoscopic radical surgery. Therefore, this model is worth promoting and adopting in clinical practice.

Keywords

Elderly Lung Cancer, Operating Room Nursing Work Procedure Sheet, Thoracoscopic Radical Surgery

*First author.
#Corresponding author.

1. Introduction

In clinical practice, lung cancer, also known as primary bronchogenic carcinoma, is a common respiratory system disease in the field of oncology [1]. Studies have shown that lung cancer is more common in middle-aged and elderly populations, and with the increasing aging population in our country, the number of elderly lung cancer patients is also increasing [2]. In clinical practice, surgery is commonly used for early-stage lung cancer patients and is considered the best treatment option. With the advancement of scientific technology, minimally invasive techniques have also made progress, and thoracoscopic radical surgery has been widely used in the treatment of lung cancer. Compared to traditional open surgery, thoracoscopic radical surgery has advantages such as smaller incisions and faster recovery, which to some extent alleviates patient pain. However, thoracoscopic surgery is a minimally invasive procedure that combines modern imaging technology with high-tech surgical instruments. The instruments are more precise, and the operation is relatively challenging, placing high demands on the surgeon's skills and the quality of nursing care [3]. Moreover, most elderly patients have comorbidities such as hypertension, diabetes, and hyperlipidemia, and they have weaker immune and resistance functions, which are not conducive to their prognosis [4]. Therefore, scientific and comprehensive surgical treatment and nursing care play a crucial role in elderly lung cancer patients.

2. Materials and Methods

In this study, an operating room nursing work procedure sheet was developed for elderly lung cancer patients undergoing thoracoscopic radical surgery, aiming to explore its clinical application. The reported results are as follows.

2.1. General Materials

A total of 85 elderly lung cancer patients (n = 85) admitted to our hospital from May 2022 to May 2023 were included as the study population, with 42 cases in the study group and 43 cases in the regular group. Among them, the study group consisted of 23 male patients and 19 female patients, with ages ranging from 60 to 75 years and an average age of (72.23 ± 10.62) years. The regular group consisted of 22 male patients and 21 female patients, with ages ranging from 62 to 76 years and an average age of (73.52 ± 10.34) years. There were no significant differences in age or gender between the two groups ($P > 0.05$).

Inclusion criteria: 1) Meeting the relevant criteria for lung cancer diagnosis and undergoing thoracoscopic radical surgery [5]; 2) Age > 59 years; 3) Patient and family members providing informed consent and signing the consent form.

Exclusion criteria: 1) Presence of severe organ diseases such as liver or kidney disorders and malignant tumors; 2) Severe mental illness or inability to cooperate; 3) Coagulation dysfunction.

2.2. Methods

The regular group of elderly patients received routine nursing care, while the study group of elderly patients was provided with the perioperative nursing care work procedure table in the operating room.

The study group of elderly patients received perioperative nursing care according to the operating room nursing care work procedure sheet.

1) Prior to the surgery, the nursing staff checks whether the operating room environment is clean and the temperature indoors is around 20 to 24 degrees Celsius, with a relative humidity of approximately 50 to 60 percent. They also verify if all the required items and medications (including emergency medications) for the surgery are adequately prepared and ensure the normal functioning of the equipment used during the procedure.

2) After the patient enters the operating room, the operating room nursing staff should exhibit a warm and courteous attitude, speaking gently to provide psychological comfort to the patient and alleviate any feelings of anxiety or fear. They should also provide the patient with health education, informing them about preoperative precautions. They confirm and understand the patient's basic information, such as any previous history of surgery, drug allergies, and other co-existing conditions. They verify the patient's name, age, and gender, and check the patient's identification wristband. They also check if the patient has removed all jewelry and if there are any metal implants in the patient's body. Intravenous access is established, and prior to anesthesia, the patient is asked about any discomfort. They assist the anesthesiologist with the puncture and provide appropriate physical and verbal encouragement to the patient while observing the patient's blood pressure, heart rate, and other vital signs.

3) Prior to making an incision, they ensure a clear surgical field and provide warmth to the patient. They assist the surgeon in positioning the patient, connecting surgical instruments and equipment, and adjusting the image clarity. During the procedure, they closely monitor the patient's vital signs, fluid administration, and urine output. They provide the necessary items and instruments required by the surgeon during the surgery and properly manage the specimens.

4) After the surgery is completed, they immediately check and switch off the power of the equipment. They count the instruments together with other nursing staff in the operating room. They verify if the patient's wound dressings and drains are securely fixed. They assist the anesthesiologist in extubating the patient. After reconfirming the patient's clinical information, they escort the patient out of the operating room.

5) After a simple handling and counting of contaminated instruments and items, they transfer them from the designated elevator to the disinfection supply center. The disinfection and sterilization procedures should be strictly adhered to.

2.3. Observation Indicators

1) Comparison of operative time, intraoperative blood loss, and time to am-

bulation between the two groups of patients.

2) Comparison of postoperative complication rates between the two groups of patients, including wound infection, postoperative bleeding, pleural effusion, etc.

2.4. Statistical Processing

The statistical analysis was conducted using SPSS 26.8 software. Continuous data were expressed as mean ± standard deviation ($\overline{x} \pm s$) and analyzed using *t*-tests. Categorical data were presented as percentages and analyzed using χ^2 tests. The data showed significant differences ($P < 0.05$).

3. Results

3.1. Comparison of Operative Time, Time to Ambulation, and Intraoperative Blood Loss between the Two Groups of Patients

In the study group, the elderly patients had shorter operative time and time to ambulation compared to the regular group. Additionally, the intraoperative blood loss in the study group was lower than that of the elderly patients in the regular group, and these differences were statistically significant ($P < 0.05$). See Table 1 for detailed data.

3.2. Comparison of Postoperative Complication Rates between the Two Groups of Patients

The overall incidence of postoperative complications in the study group of elderly patients (4.76%) was significantly lower than that in the regular group of elderly patients (19.05%), with a significant difference in the data ($P < 0.05$), as shown in Table 2.

Table 1. Comparison of surgical time, duration of getting out of bed, and intraoperative blood loss between the two groups of patients ($\overline{x} \pm s$).

Group	No.	Operation time (min)	Intraoperative blood loss (ml)	Duration of getting out of bed (d)
Study group	42	146.34 ± 20.47	194.46 ± 30.32	2.49 ± 0.53
Regular group	43	159.52 ± 20.51	217.63 ± 30.25	2.87 ± 0.64
t		2.963	3.527	2.978
P		0.004	0.001	0.004

Table 2. Comparison of postoperative complication rates between the two groups of patients (%).

Group	No.	Wound infection	Postoperative bleeding	Pleural effusion	Overall incidence rate (%)
Study group	42	1 (2.38%)	1 (2.38%)	0 (0.00%)	2 (4.76%)
Regular group	43	4 (9.30%)	3 (6.98%)	1 (2.38%)	8 (19.05%)
χ^2					3.922
P					0.048

4. Discussion

The pathogenesis of lung cancer is complex and diverse, and there is currently no definitive conclusion in clinical practice. It is closely related to smoking, long-term exposure to polluted environments, and having chronic lung infections [6]. Lung cancer can be divided into medical conservative treatment and surgical treatment. Medical conservative therapy can improve patients' clinical symptoms but cannot completely cure the disease, and the treatment period is relatively long. For early-stage lung cancer patients, surgery is the most suitable treatment method. Thoracoscopic radical surgery has a relatively high tumor resection rate and better prognosis. It results in smaller incisions and reduced postoperative pain for patients, which aids in the recovery of elderly patients [7]. However, due to the advanced age and relatively poor overall physical function of elderly patients, as well as the greater difficulty of performing thoracoscopic surgery compared to conventional open chest surgery, poor-quality nursing care and management can increase the incidence of postoperative complications and add to the risks during surgery, lowering the success rate of the operation and posing a threat to the life safety and health of elderly patients [8] [9] [10] [11]. Therefore, efficient, rational, and meticulous nursing care plays a crucial role in enhancing surgical efficiency.

In this study, the surgical time and time taken for postoperative ambulation in the elderly patient group were faster compared to the regular group. The intraoperative blood loss was also less in the elderly patient group compared to the regular group. This indicates that nursing personnel should inspect the operating room environment before surgery, and check if the necessary items and medications are ready, as well as the condition of the instruments. They should provide health education to patients, informing them of preoperative precautions, confirming and understanding the basic information of the patients such as their name, age, and gender, and verifying patient identification with wristbands. Providing patients with warmth, assisting the surgeon in positioning the patient, and closely monitoring the patient's vital signs, fluid intake, and urine output can effectively improve the quality of nursing care, enhance surgical efficiency, and better assist the anesthesiologist and surgeon. Consequently, it reduces surgical time and intraoperative blood loss, improves surgical efficiency through efficient nursing care, and facilitates faster postoperative recovery and early ambulation for elderly patients.

The overall incidence of postoperative complications in the elderly patient group (4.76%) was significantly lower than in the regular group of elderly patients (19.05%). This indicates that providing warmth to patients during surgery can prevent excessive blood loss, shock, and other risky events due to heat loss. Strict adherence to aseptic techniques can reduce infection rates in elderly patients. Close monitoring of patient vital signs, fluid intake, and urine output, as well as checking the fixation of wound dressings and drainage, can ensure that the development of the operating room nursing work procedures leads to more

meticulous and efficient nursing care, enhances the professionalism of nursing personnel, and reduces the occurrence of adverse events.

5. Conclusion

In conclusion, the clinical application of operating room nursing work procedures for elderly lung cancer patients undergoing thoracoscopic radical surgery has shown satisfactory results. It effectively reduces the surgical and postoperative ambulation time, as well as intraoperative blood loss, thereby alleviating postoperative pain. Moreover, it significantly lowers the incidence of postoperative complications. These findings highlight the potential for further clinical implementation and promotion of these nursing protocols.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

[1] Fu, C., Li, J.R. and Ma, Y.Y. (2022) Application of Feedforward Control Nursing in Anesthesia Resuscitation and Rehabilitation for Thoracoscopic Radical Resection of Lung Cancer. *Qilu Nursing Journal*, **28**, 33-35. (In Chinese) https://doi.org/10.3969/j.issn.1006-7256.2022.22.011

[2] Jiang, F.E. and Sun, J.Y. (2023) Application Effect of Accelerated Recovery Surgical Nursing in Patients Undergoing Thoracoscopic Radical Resection of Lung Cancer. *Clinical Medical Research and Practice*, **8**, 139-142. (In Chinese) https://doi.org/10.19347/j.cnki.2096-1413.202318035

[3] Qi, C.Y., Li, J. and Gao, L. (2023) Effect of Comprehensive Perioperative Care on Postoperative Recovery of Patients Undergoing Thoracoscopic Radical Resection of Lung Cancer. *Clinical Medical Research and Practice*, **8**, 131-133. (In Chinese) https://doi.org/10.19347/j.cnki.2096-1413.202301036

[4] Cao, X.L., Xi, G.Y., Chen, Y., *et al.* (2023) The Application Effect of Comprehensive Nursing Based on ERAS Concept in the Perioperative Period of Thoracoscopic Radical Resection of Lung Cancer. *Henan Medical Research*, **32**, 1117-1120. (In Chinese) https://doi.org/10.3969/j.issn.1004-437X.2023.06.042

[5] Jiang, L.L. (2022) Application of Feedforward Control in Space Management and Position Safety Management of Robot-Assisted Lung Cancer Surgery. *Clinical Nursing Research*, **31**, 58-60. (In Chinese)

[6] Liu, Q., Yang, R.Q., Ding, L.L., *et al.* (2021) Research on the Practice and Effect of Feedforward Control Nursing Model in Operating Room Safety Management. *World Latest Medical Information Abstracts*, **21**, 23-24. (In Chinese) https://doi.org/10.3969/j.issn.1671-3141.2021.42.011

[7] Hou, Y.X. and Qiang, W.M. (2016) Research on the Application of Structure-Process-Outcome Quality Evaluation Model in Reducing the Rate of Central Venous Catheter Occlusion in Patients with Advanced Lung Cancer. *Chinese Journal of Practical Nursing*, **32**, 668-671. (In Chinese) https://doi.org/10.3760/cma.j.issn.1672-7088.2016.09.007

[8] Dong, Q. (2023) Application of Operating Room Nursing Path Combined with Quality Feedback in Thoracoscopic Radical Resection of Lung Cancer. *Chinese and*

Foreign Medical Research, **21**, 88-92. (In Chinese)
https://doi.org/10.14033/j.cnki.cfmr.2023.15.022

[9] Li, Y.P., Wang, X.D., Zhou, R.Y., *et al.* (2023) Effect of Nursing Intervention Based on Chronic Disease Trajectory Model on Patients Undergoing Thoracoscopic Radical Resection of Lung Cancer. *Qilu Nursing Journal*, **29**, 6-8. (In Chinese)
https://doi.org/10.3969/j.issn.1006-7256.2023.08.002

[10] Lin, Y.M. (2022) Analysis of the Nursing Effect and Blood Pressure Status of Comprehensive Nursing Intervention for Patients with Hypertension Undergoing Thoracoscopic Radical Lung Cancer Surgery. *Knowledge on Prevention and Treatment of Cardiovascular Disease*, **12**, 63-65. (In Chinese)
https://doi.org/10.3969/j.issn.1672-3015(x).2022.34.018

[11] Li, Y.Y. (2022) The Application Effect of Optimized Intraoperative Nursing in Thoracoscopic Radical Resection of Lung Cancer under Ultrasound-Guided Thoracic Paravertebral Nerve Block. *Chinese and Foreign Medical Research*, **20**, 100-103. (In Chinese) https://doi.org/10.14033/j.cnki.cfmr.2022.18.026