Clinical observation of thoracoscopic radical resection of lung cancer in the treatment of early non-small cell lung cancer

Yan Jing[1], Yang Jinping[1], Zheng Xiaoli[1], Hu Yifei[2], Huang Dayong[3]

[1]Qujing Medical College, Qujing, Yunnan, China

[2]Capital Medical University, Beijing, China

[3]Beijing Friendship Hospital Affiliated to Capital Medical University, Beijing, China

Keywords: thoracoscopy; radical resection of lung cancer; early non-small cell lung cancer

Abstract: Objective: To investigate the clinical effect of thoracoscopic radical resection of lung cancer in the treatment of early non-small cell lung cancer. Methods: Data were collected from 97 patients with early non-small cell lung cancer admitted to our hospital between March 2018 and March 2019. The patients were divided into control group (n=48) and research group (n=49) according to the digital random method. Routine thoracotomy and thoracoscopic radical resection of lung cancer were used respectively. The clinical therapeutic effects of the two groups were compared. Fruit. Results: The operation time of the study group was longer than that of the control group. The intraoperative bleeding volume, thoracic drainage volume, hospitalization time and dosage of analgesics after operation were all less than those of the control group ($p < 0.05$); the levels of inflammatory factors in the study group were significantly lower than those of the control group ($p < 0.05$). The incidence of complications was 6.12% (3/49) in the study group and 20.83% (10/48) in the control group. There was significant difference between the two groups ($p < 0.05$). CONCLUSION: Thoracoscopic radical resection of lung cancer for early non-small cell lung cancer is effective, the recovery of patients is faster, the incidence of complications is reduced, and the biochemical indicators are significantly decreased after operation, which is worthy of clinical promotion.

1. Introduction

Lung cancer is one of the most common malignant tumors with high morbidity and mortality in China. The incidence of non-small cell lung cancer (NSCLC) accounts for more than 85% of lung cancer patients. The location of non-small cell lung cancer is relatively limited. The pathological manifestations of non-small cell lung cancer are local invasion of thoracic organs and less metastasis. Video-assisted thoracoscopic surgery has been widely used in minimally invasive surgery in various fields in recent years. To explore the clinical effect of thoracoscopic radical resection of lung cancer in the treatment of early non-small cell lung cancer, the results of this study are reported as follows.

2. Data and methods

2.1 General information

Materials 97 patients with early non-small cell lung cancer admitted to our hospital from March 2018 to March 2019 were divided into control group (48 cases) according to the digital random method. There were 25 males and 23 females with an average age of (47.59 +2.17) years. Pathological types were squamous cell carcinoma (14 cases), adenocarcinoma (16 cases) and squamous cell adenocarcinoma (18 cases). There were 49 patients in the study group, including 26 males and 23 females, with an average age of (48.17 + 1.92) years. Pathological classification included 15 squamous cell carcinomas, 15 adenocarcinomas and 19 squamous cell carcinomas. Inclusion criteria [3]: Non-small cell lung cancer (NSCLC) was diagnosed by pathological biopsy; TNM stage was stage I-II; no metastasis was found. Exclusion criteria: patients with bronchial,

  DOI: 10.25236/cmph.2019.009

chest wall and pleural adhesions; patients with coagulation and dysfunction; patients with surgical contraindications. This experiment has been approved and signed by the Ethics Committee. The general data of gender, age and case classification of the two groups were compared. The results showed that there was no significant difference between the two groups ($P > 0.05$).

2.2 Experimental Method

The control group adopted routine thoracotomy radical resection of lung cancer. Specifically, patients underwent general anesthesia. After anesthesia, 30 cm incision was made in the intercostal space between 5 and 6 of the patients. The lesions were excised and lymph nodes were dissected.

Study group: Patients were given general anesthesia, lateral decubitus position, and one-lung ventilation was established. Take 7-8 intercostals of axillary midline and make 10-15 mm operation hole. Insert 30 degree inclination into thoracoscope to observe the location, invasion degree, tumor diameter and pleural adhesion. Make a 5 mm main operation port between 4-5-ribs of axillary anterior line, make a 20 mm auxiliary operation port between 6-7-ribs of axillary posterior line, and remove the lesions through main operation port under the screen. Lateral lobe and hilum

Lymph node dissection, thoracic lavage, thoracic drainage tube placement, suture.

2.3 Observation Indicators

The operation time, intraoperative bleeding volume, lymph node dissection volume, thoracic drainage volume, dosage of analgesics, hospital stay, serum levels of inflammatory factor leukocyte count (WBC), C-reactive protein (CRP), albumin (ALB) and the incidence of complications in the two groups were compared. Fasting venous blood was taken for examination before and 2 days after operation. WBC and ALB were detected by automatic biochemical analyzer and CRP was detected by ELIS.

2.4 Data Processing

In this study, SPSS20.0 software was used to process the data, and the measurement data were expressed as ($x + s$) and t-test was used. Chi-square test was used for counting data. If $P < 0.05$, the difference is statistically significant.

3. Results

3.1 Comparison of operative indexes between two groups

The operation time of the study group was longer than that of the control group ($p < 0.05$); the intraoperative bleeding volume, thoracic drainage volume, hospital stay, dosage of analgesics after operation were less than those of the control group ($p < 0.05$); there was no significant difference in the number of lymph dissection between the two groups ($p > 0.05$). See Table 1 for details.

Table 1 Contrast Table of two groups of surgical indicators

Project	Operation time(min)	Intraoperative bleeding volume(ml)	Number of lymph node dissections (number)	Thoracic drainage(ml)	Hospitalization time(d)	Dose of analgesics used after operation(mg)
Control group (n = 48)	118.24±9.21	324.28±8.77	15.24±2.19	428.55±5.11	16.28±2.09	221.19±10.91
Study group (n = 49)	138.74±8.19	241.21±7.26	15.17±1.88	397.26±3.57	11.26±3.04	164.54±9.51
t value	11.59	50.86	0.17	35.02	9.46	27.28
P value	0.00	0.00	0.87	0.00	0.00	0.00

3.2 Comparison of serum inflammatory factors between two groups before and after operation

There was no significant difference in serum inflammatory factors between the two groups

before operation (P > 0.05); the serum inflammatory factors in the study group after operation were significantly smaller than those in the control group, and there was significant difference between the two groups (P < 0.05). Details are shown in Table 2.

Table 2 Comparison Table of serum inflammatory factors before and after operation in two groups (x±s)

Project	WBC($\times 10^9$/L)		CRP(mg/L)		ALB(g/L)	
	Preoperative	Postoperative	Preoperative	Postoperative	Preoperative	Postoperative
Control group (n = 48)	6.81±0.74	18.47±2.19	6.71±2.07	19.55±3.09	341.21±11.06	217.54±8.79
Study group (n = 49)	6.77±0.62	11.27±3.07	6.66±1.09	13.91±2.76	339.44±10.22	147.49±7.78
t value	0.29	13.27	0.15	9.49	0.82	41.58
P value	0.78	0.00	0.89	0.00	0.41	0.00

3.3 Comparisons of incidence of complications between two groups

The incidence of complications was 6.12% (3/49) in the study group and 20.83% (10/48) in the control group. There was significant difference between the two groups (p < 0.05). Details are shown in Table 3.

Table 3 Complication rates of two groups (%)

Project	Atelectasis	Incision infection	Pneumothorax	Pulmonary infection	Pleural effusion	Incidence of complications
Control group (n = 48)	3(6.25)	3(6.25)	2(4.17)	2(4.17)	1(2.08)	10(20.83)
Study group (n = 49)	1(2.04)	1(2.04)	1(2.04)	0	0	3(6.12)
X^2 value	-	-	-	-	-	4.52
P value	-	-	-	-	-	0.03

3. Discussion

Video-assisted thoracoscopy avoids the damage of thoracic nerves and muscles caused by traditional thoracotomy, and enlarges the lesions through endoscopy through small incision, which makes the operation more meticulous and precise[3]. Although thoracoscopic surgery is relatively complex, enlargement of visual field is conducive to lymph node dissection after operation. The thoracic environment of patients during operation is in a closed state, and thoracic traction is not necessary. It has little impact on the lung function of patients, reduces the incidence of complications after operation, and is conducive to the rehabilitation of patients after operation and enhances the recovery ability of patients. Reduce the occurrence of inflammatory reaction [4].

In this study, the operation time of the study group was longer than that of the control group, and the intraoperative bleeding volume, thoracic drainage volume, hospitalization time and dosage of analgesics after operation were less than those of the control group (p < 0.05). The results show that thoracoscopy can significantly reduce the surgical trauma, and patients recover quickly after operation, without increasing the probability of recurrence and metastasis of tumors. The levels of serum inflammatory factors in the study group were significantly lower than those in the control group (p < 0.05). The results showed that both groups of patients had inflammatory reaction after operation, but the study group had less stress injury, lower degree of inflammatory reaction and less influence on patients. The incidence of complications was 6.12% (3/49) in the study group and 20.83% (10/48) in the control group. There was significant difference between the two groups (p < 0.05). The results showed that the pulmonary function of the patients in the study group was relatively normal after operation. The effect of thoracoscopy on pulmonary internal environment and pulmonary function was relatively small compared with that of thoracotomy, and the

complications were less.

To sum up, thoracoscopic radical resection of lung cancer for early non-small cell lung cancer has a significant effect, the recovery of patients is accelerated, the incidence of complications is reduced, and the biochemical indicators are significantly decreased after surgery, which has clinical value.

Acknowledgement

Science Foundation Project of Yunnan Education Department in 2016”Fuyuan County in Yunnan Province Risk Factors for Lung Cancer Case-Control Study”(2016zzx277).

References

[1] Zhu Siyu, Li Xinhua. Clinical observation of single-port thoracoscopic radical lobectomy for early non-small cell lung cancer [J].Shandong Medicine, 2019,59(16): 41-44.

[2] Chen Haiping, Huangfu Baoguo, Cui Jianzhong. The effect of video-assisted thoracoscopic mini-incision lobectomy on visual analogue score of pain and rehabilitation process in patients with early non-small cell lung cancer [J]. Chinese Journal of Oncology Surgery, 2019, 11 (01): 63-65.

[3] Jie Shaoqiang, Wu Yuanlin, Wang Yongfu. Comparison of curative effect between thoracoscopic surgery and thoracoscopic-assisted mini-incision surgery in the treatment of early non-small cell lung cancer [J]. Cancer Clinical and Rehabilitation in China, 2019, 26 (01): 32-35.

[4] Wang Tengfei, Geng Yuliu, Chen Hao, et al. [J].Observation on the related indexes and safety of thoracoscopic radical resection of lung cancer for non-small cell lung cancer [J].Guizhou Medicine, 2019, 43 (01): 88-90.