THE PROSPECTS OF THE COMBINED TREATMENT OF NON-SMALL CELL LUNGCANCER SPREAD FORMS

Akhat Bukenov[1], Elena Gizbrekht[2], Ergaly Shauenov[2], Bekzhan Orazbayev[2], Kalmurat Razzakov[2]

[1] Department of Oncology, Karaganda State Medical University, Kazakhstan

[2] Department of Chest Surgery, Karaganda Regional Oncology Hospital, Kazakhstan

ABSTRACT

The Purpose of this study is to demonstrate the effectiveness of combined treatment for III A-B stage of non-small-cell lung cancer. Non-small-cell lung cancer spread form treatment is disputable. Operation is not final solution. The combined treatment is being tested (in clinical trials) in this study. This article argues that a combination of treatment is a better option than that of a specific treatment. However, there is a need to find new effective options for combined treatment.

UDC CODE & KEYWORDS

■ UDC: 616.24-006-08 ■ Non-Small-Cell Lung Cancer ■ Combined Treatment ■ Arglabyn Radio Sensibilization ■ Neoadjuvant Chemotherapy ■ Radiation Therapy

INTRODUCTION

Combined treatment results of 619 patients with non-small-cell lung cancer spread forms were analyzed during 2007-2012. There were: (I) radiation treatment and arglabynradiosensitization; (II) neoadjuvant radiation treatment and operation; (III) neo-adjuvant chemotherapy and operation. But combination of neoadjuvant chemotherapy and operation were reliable and effective treatment of non-small-cell lung cancer spread form patients. On average, the survival was about 5years. There was 68.4%. Artemova and Minaylo (2012) show in their studies that significant improvement in the patients relapse-free period 27 months after the combined treatment (neoadjuvant paclitaxel+carboplatin chemotherapy, operation, 15 Gray dose intra-operation radiotherapy) and 5 year survival of patients after receiving combined treatment was about 38%. The relapse-free period without cisplatinradiosensebilization was 17 months. The authors confirm both clinical effects and tumor morphology changes in growth after the treatment. Zavyalow (2012) writes that some patients have cancer progress after this treatment because of remote metastases. This recent finding is consistent with current literature on the treatment of subject.

Data collection and methodology

Combined treatment results of non-small-cell lung cancer patients have been analyzed for the period of 2007 to 2012. The patients' treatment was conducted in Karaganda Cancer Hospital Thorax Department. Radial diagnostic methods was used for verification of diagnosis. There were: (I) X-ray diagnostic; (II) computed tomography; (III) ultrasound tomography. Morphology diagnosis was verified with bronchoscope examination. There were: 500 (72.5 ±1.9%) male patients and there were female patients 119 (27.5±4.1%). Thus ratio of men and women is 4.2:1. There were 290 (58±2.8%) patients whose age were lesser than 60 years and 210 (42±3.4%) older than 60 years. On average, patients' age was 56.5 old years; the youngest patient was 27 old years; the oldest was 84 years old. 584(94.3%) patients had non-small-cell lung cancer, 35(5.7%) patients had small-cell lung cancer.

On average, there were: 356 (57.5±2.6%) left lung cancer, 218(61.2±3.3%) left upper lobe bronchus cancer, 108 (30.3±4.4%) left lower lobe bronchus cancer, 30 (8.4±%.1%) left main bronchus cancer; 263 (42.5±3%) right lung cancer, 148 (56.2±4.1%) right lower lobe bronchus cancer, 85 (32.3±5.1%) right upper lobe bronchus cancer, 21 (7.9±1.6%) right main bronchus cancer, 9 (3.4±1.1%) right middle lobe bronchus cancer. Some patients had metachrome cancer forms. There were 5 (26.3±2.7%) neck of uterus cancer, 2 (10.5±7.2%) breast cancer, 3 (15.8±8.6%) face skin cancer, 2 (10.5±7.2%) kidney cancer, 2 (10.5±7.2%) prostate gland cancer, 2 (10.5±7.2%) sigmoid colon cancer, 1 (5.3±5.2%) laryngeal cancer, 1 (5.3±5.2%) urinary blade cancer, 1 (5.3±5.2%) thyroid gland cancer. 495 (79.9±2.6%) concurrent pathology patients were verified. There were 285 (57.6±0.7%) aortacardiosclerosis patients, 96 (19.4±4%) arterialhypertensia patients, 88 (17.8±1.7%) obstructive bronchitis patients, 26 (5.5±1%) diabetes patients. 619 IIIA-B stage lung cancer patients were diagnosed based on International TNM Classification. 284 (87.6±1.8%) patients had metastasis in bronchopulmon lymph nodes, 40 (12.4±2.3%) patients had metastasis in mediastinal lymph nodes.

Treatment was prescribed based on spread, concurrent pathology and morphology lung cancer form. Three forms of combined treatment were prescribed. There were: (I) 41 (6.6±3.8%) patients were prescribed radiotherapy, arglabynradiosensitization (lyophilizated injection powder arglabyn 0.04, Kazakhstan registration number 42-1435-10, Kazakhstan patent number 10913 issue date 07.01.04.) These patients had concurrent pathology and were not provided with operation; (II) 401(64.8±2.4%) patients were conducted non-adjuvant radiation therapy and operation; (III) 177(28.6±3.4%) patients were conducted non- adjuvant chemotherapy and operation. 41 patients were conducted arglabynradiosensitization 15 minutes before radiation treatment. Arglabyn dose was 40 mg/kg. Patients were prescribed three courses hemzar (1000 mlg/m²) and cisplatin (100 mlg/m²) infusion once a three weeks before surgery treatment. These patients were provided with computed tomography and bronchoscope biopsy for tumor pathomorphism control. These patients were also provided with ultrasound tomography for remote metastasis control. There were 578 (93.4±8.9%) operations. These were 177 (28.6±1.8%) radical surgery operations, 395 (68.3±2.3%) explorative surgery operations, 6 (1.0 ± 0.4%) palliative surgery operations. Though these patients were older than 60 and had concurrent pathology.

■ European Medical, Health and Pharmaceutical Journal ■ ISSN 1804-5804 ■

They were operated and there were 6 postoperative complications, 2 of them were with postoperative lethality, 1 died from postoperative cancer progression. The results are reported in table 1. Causes of lethality were 1 (0.6%) of postoperative bleeding, 1 (0.6%) of bronchial stump fistula.

Table 1: Postoperative complications and lethality based on extent of operation

Extentsofoperations	Quantity of operations	Complications abs.number(M %)			Lethality
		Bleeding	Bronchial fistula	Pneumonia	
Radical: lob-andbilobectomy	165 (28.5)	–	1(0.6)	3(1.8)	1(0.6)
Pulmonectomy	12(2.1)	1(8.3+8)	–	1(8.3)	1(8.3)
Palliative atypical lung resection (tumor destruction)	6(1.0)	–	–	–	–
Explorative operation	385(68.3)	–	–	–	1(0.3)
Summary	578	1(0.2)	1(0.2)	4(0.7)	8(0.5)

Source: Authors

Treatment results have been analyzing during 1-5 years. Arglabynradiosensitization results of 41 patients were unreliable and ineffective. 29 (70.7 ± 7.1%) patients had lung bleeding, tumor progress, tumor destruction. This treatment was stopped. On average, the survivability of 18 (43.9 ± 7.7%) patients was about 1 year, 23 (56.1 ± 10.5%) died.

Remote results of 177 (96.7 ± 1.3%) neoadjuvant chemotherapy and radical operation patients and 6 (3.3 ± 1.4%) neoadjuvant chemotherapy, palliative operation patients have been analyzing in Table 2.

Table 2: Non-small-cell lung cancer III A-B stage combined treatment remote results

Survival, years	Patients	%
1	78	(4.6±5.5)
2	69	(37.7±5.8)
3	49	(26.8±3.2)
4	30	(30.6±8.4)
5	19	(19.4±9.30)
6	12	(12.2±2.2)

Source: Authors

30 (31%) lung cancer III A-B stage patients survivability was 4 years, 19(19.4%) lung cancer III A-B stage patients survivability was 5 years, 12(12.2%) patients survivability was above 5 years.

Non-small-cell lung cancer spread forms combined treatment results were reported in Table 3. 68.4± 6.6% patients survivability after neoadjuvant chemotherapy and operation was 5 years ($p<0.05$) and 20± 4.9% patients survivability after neoadjuvant radiation treatment was 5 years.

Table 3: Non-small-cell lung cancer spread forms treatment and the survival

№	Combined treatment forms	Summary	5 year survival	5year follow-up
1.	Neoadjuvant chemotherapy + operation	177	19	13/68.4±6.6
2.	Neoadjuvant radiation treatment + operation	401	30	6/20+4.9
		578	49	p<0.05

Source: Authors

Medical pathomorphism of 3-4 rates is noticed oftener in patients after neoadjuvant chemotherapy and operation treatment ($p<0.05$) than after neoadjuvant radiation therapy and operation. Neoadjuvant chemotherapy reduces metastasis aggression. This treatment is the most perspective in non-small-cell lung cancer spread treatment. 329 (53.1±1.9%) non-small-cell lung cancer spread form patients had tumor progression. Half of patients died during 2.5 years after treatment.

Non-small-cell lung cancer spread form patients combined treatment is problematical. It depends on biological activity of tumor and tumor metastases. The patients had micrometastases before the combined treatment. These micrometastases are not very sensitive to chemotherapy. It is necessary to search new treatment forms and anticancer drugs.

This is consistent with medical and radiologicalpathomorphism in Table 4.

Table 4: Non-small-cell lung cancer treatment medical and radiological pathomorphism

Combinedtreatmentforms	Quantity	Pathomorphism of I rate	Pathomorphism of II rate	Pathomorphism of III rate	Pathomorphism of IV rate
Neo-adjuvantchemotherapy + operation	96	96/100	92/95.8 ±2.0	61/63.5±6,2	39/40.6±7.8
Radiation therapy + operation	81	72/88.8±3.7	69/85.2±4.2	27/33.3±9.2	3/3.7±2.1
		p<0.05	p<0.05	p <0.05	p<0.05

Source: Authors

Results and discussion

Neoadjuvant chemotherapy and surgery treatment of non-small-cell lung cancer spread forms are a prior treatment. On average, these patients survival was about 5 years. There was 68.4±6.6%. It is optimal therapy for spread stage non-small-cell lung cancer.

Conclusion

Non-small-cell lung cancer spread forms neoadjuvant chemotherapy and operation treatment is a prior treatment. 68.4±6.6% patients' survival is 5 years. Medicamentalpathomorphism of 3 rates is 63.5±6.2%, Pathomorphism of 4 rate is 40.6±7.8%. Neoadjuvant radiation treatment patients survivability is 20±4.9% ($p<0.05$), radiation pathomorphismof 3-4 rate is 33.3±5.2% and 3.7±2.1%. Non-small-cell lung cancer IIIA-B stage radiation treatment is limited. Concurrent pathology patients are provided with radiation treatment.

Acknowledgements

My appreciations goes to the laboratory doctor of the clinical-biochemistry and Immunologic laboratory of Oncology Centre of Adjara - Nona Kharabadze and head of the laboratory of Maternity home's named after Yoseb Charkviani - Tsiuri Kakhidze.

REFERENCES

1. Arroliga, A.C.,Malthay, R.A. (1993). The role of bronchoscope in lung cancer.Clinical Chest Medicine, 14, 87-98.

2. Artemova, N.A., Minaylo,I.I. (2012). Non-small-cell lung carcinoma stage and radiation-inducted tumor involution are as survival prognosis factor.VII International congress of Oncologists and Radiologists of CIS countries.Astana, 215.

3. Dobrodiev, A.U., Buzinov, C.A., Zavyalow, A.U. (2012). Lung cancer combined treatment and intraoperative radiation therapy. VII International congress of Oncologists and Radiologists of CIS countries.Astana, 220.

4. Machtay, B.M., Lee, J.H. (2001). Risk of death from concurrent disease is not excessively increased by modern postoperative radiotherapy for high-risk resected non-small-cell lung carcinoma. Clinical Oncology, 19, 3912-3917.

5. Miller, S.B., Tuzicov, S.A., Goldberg, W.E.(2012). Non-small-cell cancer patients neo-adjuvant chemotherapy.VII International congress of Oncologists and Radiologists of CIS countries.Astana, 228.

6. Rice, T.W., Adelstein, D.J., Koka, A. (1995). Radiation induction therapy and resection for poor prognosis III stagenon-small-cell lung cancer.ThoracicSurgery, 60, 586-591.