

SURGICAL TREATMENT FOR PATIENTS WITH SPINAL METASTASIS FROM LUNG CANCER: A RETROSPECTIVE STUDY OF 87 CASES

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Disclosure

- I do not have any affiliations (financial or otherwise) to declare.

Introduction

- Spine is the most popular site of metastatic lesions in patients with lung cancer
- Few and discordant studies with small cohorts have studied spinal surgery and prognosis

Coleman RE, Clin Cancer Res, 2006

Tang, Y., et al., J Bone Joint Surg Am, 2016



Objective and Method

- Objective:

To evaluate prognostic factors and the outcomes of spinal metastasis from lung cancer operated in our center.

- Method:

-Retrospectively reviewed lung cancer patients with spinal metastases operated in our center from 2008 to 2018.

-Data collected included age, smoking history, ASIA score, revised Tokunashi score, perioperative complications, walking ability and adjuvant treatment.

Results

- 87 patients were included
- Mean age: 61.3 ± 1.9 years old
- Majority of patients had metastatic tumor at thoracic spine (51 patients, 58.6%)
- Mean survival: 8.1 ± 3 months
- Median survival: 4.1 ± 0.8 months
- Medical complications rate: 13.8%
- Surgical complications rate: 5.7%
- Infection rate: 2.3%
- The thirty-day mortality rate: 4.6%.

Univariate analysis of prognostic factors for survival time

Variable	No. of patients	Median Survival Time (months) 95% CI	P-value (log rank)
<i>Tobacco use</i>			<0.01
Yes	52	3.7 (2.7-4.7)	
No	35	7.6 (3.1-12.1)	
<i>Pre. ASIA score</i>			0.02
A	1	1.6	
C	5	2.2 (1.2-3.2)	
D	39	4.1 (2.8-5.5)	
E	42	4.7 (2.8-6.6)	
<i>Post. ASIA score</i>			0.01
C	2	1.7	
D	27	3.4 (1.6-5.2)	
E	58	4.7 (2.9-6.5)	
<i>Revised Tokuhashi score</i>			<0.01
0-8	72	3.8 (2.8-4.8)	
9-11	15	19.6 (0-44.0)	
<i>Post. ambulatory status</i>			<0.01
No	4	0.9 (0-2.0)	
With help	35	2.9 (2.1-3.7)	
Independent	48	5.4 (2.4-8.4)	
<i>Post. Radiotherapy</i>			0.01
No	28	3.8 (2.4-5.1)	
Yes	59	4.7 (2.9-6.5)	
<i>Post. Chemotherapy</i>			<0.01
No	54	2.7 (1.8-3.6)	
Yes	33	8.3 (6.4-10.2)	

Multivariate analysis of prognostic factors for survival time

Variable	Hazard Ratio	95% CI	P-value
<i>Tobacco use</i>			
No	Reference		
Yes	2.16	1.21-3.81	<0.01
<i>Revised Tokuhashi score</i>			
0-8	Reference		
9-11	0.36	0.16-0.79	0.01
<i>Post. ambulatory status</i>			
No	Reference		
With help	0.10	0.02-0.43	<0.01
Independent	0.47	0.01-0.21	<0.01
<i>Post. Radiotherapy</i>			
No	Reference		
Yes	0.56	0.33-0.95	0.03
<i>Post. Chemotherapy</i>			
No	Reference		
Yes	0.26	0.15-0.47	<0.01

Discussion

- Patients with spinal metastasis from lung cancer had very poor prognosis
- Surgery to improve mechanical stability, neurological function and pain
- Our study, the largest series to date, shows that revised Tokuhashi score is a useful prognostic tool of spinal metastasis from lung cancer
- Postoperative radiotherapy (HR: 0.56, $p=0.03$) and postoperative chemotherapy (HR: 0.26, $p<0.01$) were independent prognostic factors improving survival time

Conclusion

- The largest retrospective case series of surgically treated spinal metastasis secondary to lung cancer.
- Surgical intervention improves quality of life, especially offers non-ambulatory patients high chance of regaining walking ability, and the benefits from surgery outweigh the risks.