

2023 대한심장혈관흉부외과학회

# 제55차 추계학술대회 & APELSO 2023

2023. 11. 02 (Thu) - 11. 04 (Sat), 그랜드 인터컨티넨탈 파르나스 서울

Operative and mid-term oncologic outcomes of  
the surgery as a form of local consolidation for  
oncogenic-driven advanced NSCLC



- **Local consolidative therapy** in advanced oncogene-driven NSCLC is an **emerging approach** in clinical practice for avoiding resistance to the targeted agent and delaying the progression. However, these studies **mainly focused on radiation therapy**, and the **role of surgery has not been studied yet**.
- This study aims to investigate the **peri-operative and mid-term oncologic outcomes of surgery as a form of local consolidation for oncogenic-driven advanced NSCLC after targeted therapy**.

## Methods

- This is a retrospective analysis of the prospectively collected surgery registry of **stage IIIB-C or IV NSCLC patients treated with surgery** at our institution from **March 2018 to October 2022**.

Table 1. Patient characteristics

	N or Median	% or IQR
<b>Age at operation, years</b>	56.2	± 11.4
<b>Sex</b>		
Male	24	32.4%
Female	50	67.6%
<b>Smoking history</b>		
Never smoker	51	68.9%
Former smoker	16	21.6%
Current smoker	7	9.5%
<b>Smoking, pack-years</b>	8.2	± 14.6
<b>ECOG</b>		
0	66	89.2%
1	8	10.8%
<b>PFT</b>		
FEV1, Liters	2.37	2.01-2.84
FEV1, Liters (% predicted)	89.0%	82.0%-100.0%
DLCO, mL/mmHg/min	17.4	16.0-19.8
DLCO, % predicted	92.0%	77.5%-99.5%
<b>Primary tumor location</b>		
RUL	19	25.7%
RML	8	10.8%
RLL	21	28.4%
LUL	10	13.5%
LLL	16	21.6%
<b>Clinical stage at diagnosis (8th)</b>		
IIIB	10	13.5%
IIIC	1	1.4%
IVA	27	36.5%
IVB	36	48.6%
<b>Metastasis sites at diagnosis</b>		
Brain	12	16.2%
Bone	10	13.5%
Lymph nodes	6	8.1%
Intrathoracic organs	11	14.9%
Multiple organs	28	37.8%
<b>Initial metastasis classification</b>		
IIIB-C	11	14.9%
Oligometastatic disease (< 5)	35	47.3%
Polymetastatic disease	28	37.8%
<b>Combined brain metastasis at diagnosis</b>	31	41.9%
<b>Mutational profile at diagnosis</b>		
EGFR	53	71.6%
ALK	19	25.7%
ROS	2	2.7%

Table 2. Preoperative disease status and pathologic outcomes

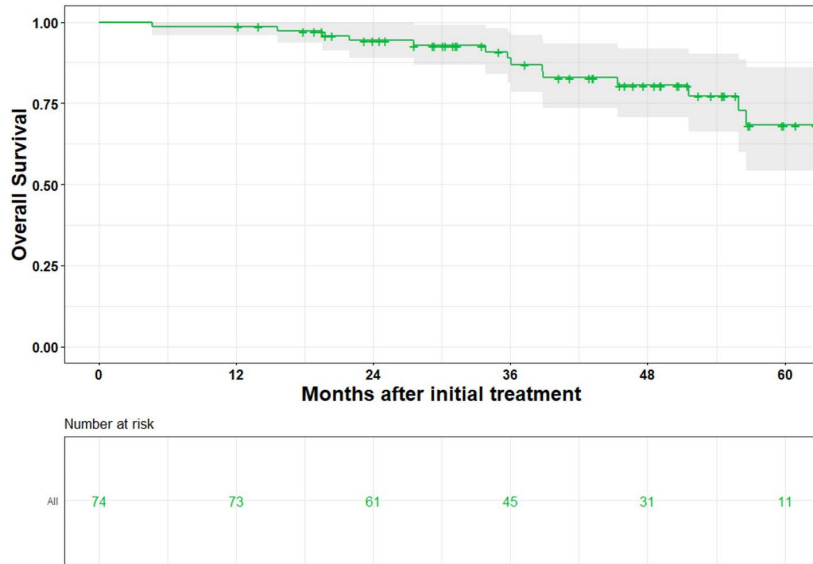
	N or Median	% or IQR
<b>Interval from initial TKI to operation, months</b>	12.8	± 10.0
<b>Preoperative classification of oligometastatic disease</b>		
IIIB-C	11	14.9%
Repeat oligopersistence	25	33.8%
Repeat oligoprogression	10	13.5%
Induced oligopersistence	6	8.1%
Induced oligoprogression	2	2.7%
Polymetastatic disease	20	27.0%
<b>Response of preoperative treatment</b>		
Primary site		
- PR/SD	57	77.0%
- PD	17	23.0%
Metastatic site		
- NED/CR	20	27.0%
- PR/SD	51	68.9%
- PD	3	4.1%
<b>Pre-operative targeted agent</b>		
Gefitinib	24	32.4%
Afatinib	11	14.9%
Erlotinib	1	1.4%
Osimertinib	15	20.3%
Lazertinib	2	2.7%
Alectinib	14	18.9%
Brigatinib	1	1.4%
Crizotinib	5	6.8%
Lorlatinib	1	1.4%
<b>Post operative ypStage</b>		
CR	10	13.5%
I	12	16.2%
II	3	4.1%
III	6	8.1%
IV	43	58.1%
<b>Primary site viable tumor volume</b>		
CR	14	18.9%
MPR (<10%)	11	14.9%
Non-MPR	49	66.2%
<b>Postoperative disease status</b>		
NED/CR	32	43.2%
Non-NED	42	56.8%

Table 3. Peri-operative outcomes and follow-up

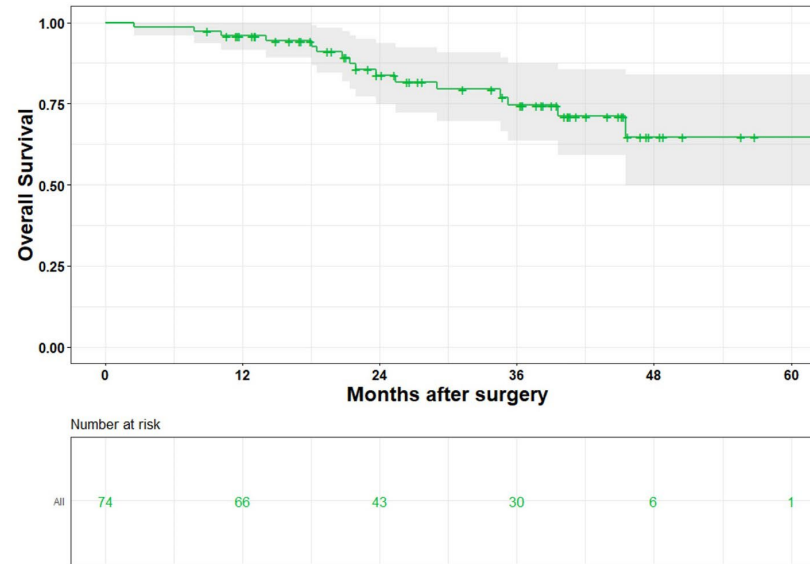
	N or Median	% or IQR
<b>Extent of pulmonary resection</b>		
Sublobar resection	10	13.5%
Lobectomy	61	82.4%
Bi-lobectomy	3	4.1%
<b>Surgical approach</b>		
Thoracotomy	2	2.7%
VATS	66	89.2%
Conversion to thoracotomy	6	8.1%
- Difficult to dissect LN	4	5.4%
- Difficult to dissect pulmonary artery	2	2.7%
<b>Combined surgical procedure</b>	29	39.2%
Neck lymph node dissection	9	12.2%
Abdominal lymph node dissection	1	1.4%
Separate pulmonary wedge resection	3	4.1%
En-bloc resection of adjacent lobe	8	10.8%
Other procedure	7	9.5%
<b>Duration of surgery, min</b>	120.4	± 49.5
<b>Duration of anesthesia, min</b>	171.7	± 55.4
<b>Estimated blood loss, ml</b>		
minimal (<50)	47	63.5%
50-200	22	29.7%
>200	5	6.8%
<b>Complete resection (planned field)</b>		
R0	71	95.9%
R1	1	1.4%
R2	2	2.7%
<b>ICU stay (duration)</b>	1 (1 day)	1.4%
<b>Chest tube duration, day</b>	4.0	± 2.0
<b>Postoperative hospital stays, day</b>	6.0	± 4.1
<b>Complication (Grade≥2)</b>	18	24.3%
Prolonged air leak (>5days)	7	9.5%
Chyle leakage	4	5.4%
Vocal cord palsies	2	2.7%
Broncho-pleural fistula	1	1.4%
Acute lung injury	1	1.4%
Pneumonia	2	2.7%
Pneumothorax	1	1.4%
<b>In-hospital mortality</b>	0	0.0%
<b>Post operative follow-up duration</b>	27.5	18.2-40.5
<b>Post operative disease progression</b>	35	47.3%
Lung	8	10.8%
Brain	12	16.2%
Bone	2	2.7%
Pleura	3	4.1%
Distant LN	3	4.1%
Multiple organs	5	6.8%
Others	2	2.7%



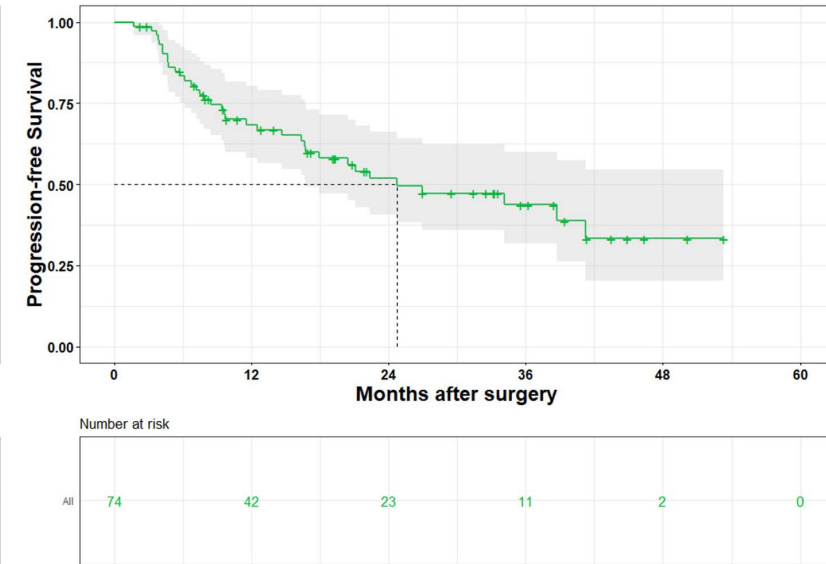
**A** Overall Survival Curve



**B** Overall Survival Curve

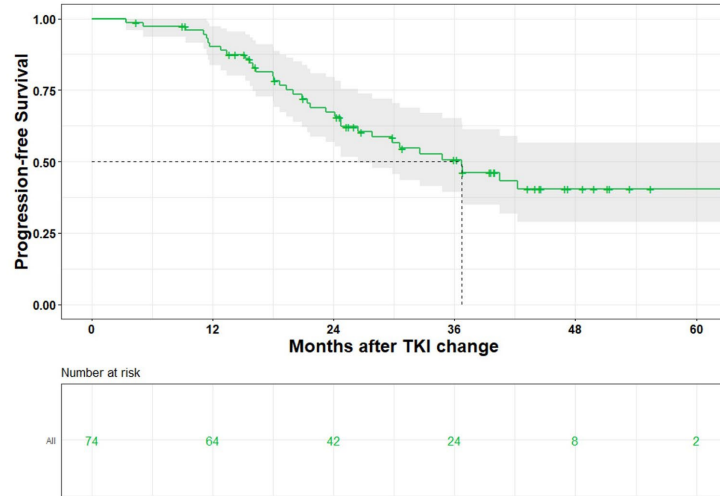


**C** Progression-free Survival Curve

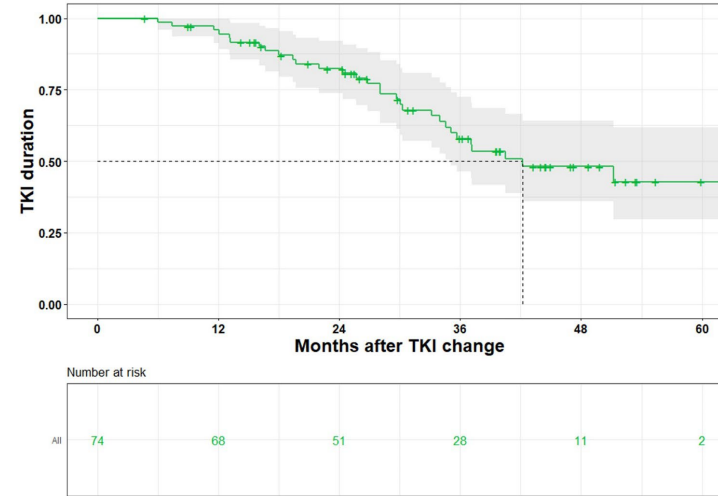


- The 5-year overall survival after initial treatment was **68.2%**
- The 3-year overall survival after surgery was **74.5%**
- The 3-year progression-free survivals after surgery was **43.6%**
- The median progression-free survivals after surgery was **24.7months**

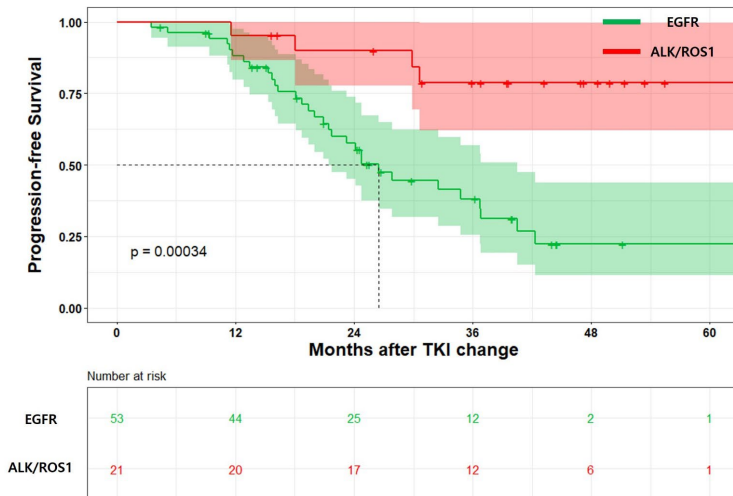
**A** Progression-free Survival Curve



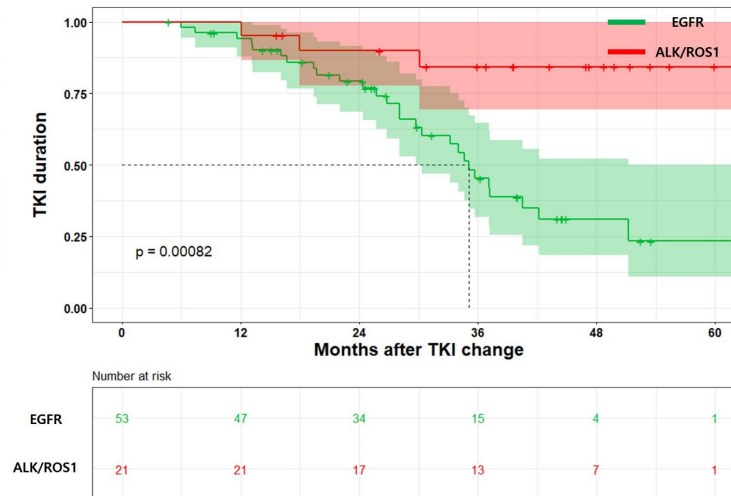
**B** TKI duration Curve



**C** Progression-free Survival Curve



**D** TKI duration Curve



- The median peri-operative TKI treatment duration was **30.2 months** [19.4-41.8], much longer than the previous literature reported. Furthermore, it could be longer after more follow-up since **43 patients (56.7%)** still maintain peri-operative TKI.
- Patients with **ALK/ROS1** mutations show a **better prognosis** in progression-free survival and TKI treatment duration than patients with EGFR mutations.



- The **pulmonary resection** for advanced NSCLC after targeted therapy was **feasible**.
- The mid-term oncologic outcome was **promising** for avoiding or delaying the progression.
- The long-term benefits of pulmonary resection on oncologic outcomes after targeted therapy must be studied in further trials.