

P1.091: Expanding Lung Cancer Screening: Better Survival in Asymptomatic Patients Undergoing Lung Resection Surgery

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INTRODUCTION

Lung cancer is the leading cause of cancer related mortality worldwide, with an estimated 2.48 million new cases and 1.82 million deaths annually (1).

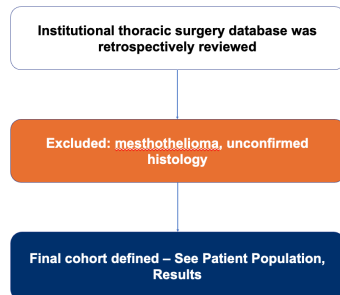
Landmark trials (NLST, NELSON) demonstrated a 20% reduction in relative lung cancer mortality with low dose CT screening, and a confirmed 24% reduction after 10 years of screening respectively (2,3).

However, it remains unclear if real world asymptomatic patients resemble screening populations or share similar survival benefits.

Study Objectives: Characterise the clinical profile of asymptomatic patients, assess their alignment with screening eligible patients and compare OS/DFS with symptomatic patients.

METHODS

Design:

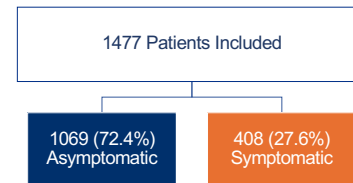


Parameters:

- Variables reviewed: age, smoking history, pathological stage (8th edition TNM), presenting symptoms
- Early stage disease defined as MIA/AIS/IA1/IA2 (invasive tumour ≤ 2 cm); IA3 and beyond = non-early stage
- Symptoms classified as major (cough/chest pain) vs minor/no symptom for subgroup analysis
- OS and DFS assessed up to 5 years post-treatment
- Statistical significance set at $P \leq 0.05$.

RESULTS

Patient Population

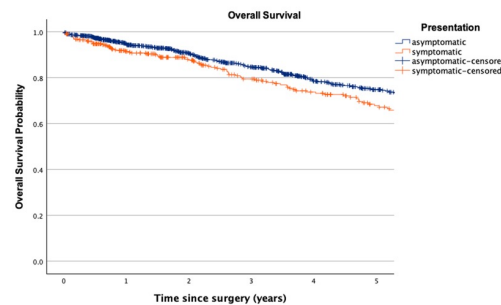


Characteristic	Asymptomatic	Symptomatic	p- value
Age, years, mean $\pm$ SD	64.9 $\pm$ 30.2	65.7 $\pm$ 11.1	0.469
Former/Current smoker	32.4% (339/1045)	40.6% (164/404)	0.01
Early-stage disease	53.6% (572/1067)	32.1% (130/405)	<0.001
Male sex	51.4% (549/1069)	51.7% (211/408)	0.90
Adenocarcinoma histology	82.6% (693/839)	72.4% (283/391)	<0.001
Lobectomy	53.9% (567/1051)	70.9% (268/378)	<0.001

Asymptomatic patients were less likely to smoke (32.4% vs 40.6%, $p=0.01$) and more likely to have early-stage disease (53.6% vs 32.1%, $p<0.001$) and adenocarcinoma histology (82.6% vs 72.4%, $p<0.001$). They were also less likely to require lobectomy (53.9% vs 70.9%, $p<0.001$).

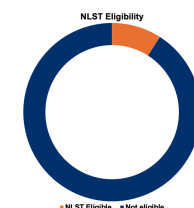
Survival Outcomes

Outcome	Year 1	Year 2	Year 3	Year 4	Year 5
OS - Asymptomatic	97.7%	93.1%	87.4%	80.8%	72.7%
OS - Symptomatic	93.3%	89.2%	80.8%	71.6%	64.0%
DFS - Asymptomatic	96.5%	87.6%	78.7%	70.3%	63.2%
DFS - Symptomatic	89.4%	81.5%	68.9%	59.4%	52.8%



True Kaplan-Meier estimate (with censoring) comparing symptomatic vs asymptomatic patients. OS was significantly higher in asymptomatic patients ($p<0.05$)

Only 9.0% of evaluable asymptomatic patients met NLST screening eligibility criteria



Among 930 of evaluable asymptomatic patients (139 excluded, insufficient data), 84 (9.0%) met full NLST criteria. 45/350 (12.9%) of evaluable symptomatic patients met full NLST criteria - suggesting NLST criteria might not reliably distinguish real world asymptomatic from symptomatic patients

Symptom Subtype Analysis

Outcome	Major Symptoms	Minor/No Symptoms	p- value
OS1	92.7%	96.9%	0.004
DFS 1-5	87.6/79.2/67.7/59.3/54.3%	95.4/86.6/77.2/68.2/60.4%	<0.001-0.208

Symptomatic patients with major symptoms had poorer outcomes, especially at 1 year OS (92.7% vs 96.9%, $p=0.004$) and sustained across DFS landmarks to 5 years.

DISCUSSION AND CONCLUSION

Actionable Take Away Message

- Asymptomatic patients had earlier stage disease and significantly better OS and DFS than symptomatic patients
- Only 9.0% of evaluable asymptomatic patients met NLST screening eligibility criteria. Most would have not been captured by screening programmes.

Future Direction for Research

- A substantial proportion of asymptomatic patients may be non-smokers, despite screening criteria primarily targeting smokers
- Nearly half of lung cancer patients in Singapore are non smokers (4), which is distinct from Western populations. Local SOLSTICE study is evaluating screening in non-smoking populations to inform future screening eligibility criteria
- Findings support identifying high risk patients before symptom onset and expanding screening criteria to other asymptomatic groups

REFERENCES & ACKNOWLEDGEMENTS

