



THE CLINICAL QUESTION

To compare practice patterns and outcomes of diagnostic strategies in patients with lung cancer and mediastinal lymphadenopathy without evidence of distant metastases.

TAKE HOME MESSAGE

Performing mediastinal sampling first in concordance with guideline-consistent care resulted in fewer tests and complications. Three quality gaps were identified: 1) failure to sample the mediastinum first, 2) failure to sample the mediastinum at all in patients with NSCLC, and 3) overuse of thoracotomy.



BACKGROUND

Patients with suspected lung cancer who have hilar/mediastinal lymphadenopathy, central primary tumor location and without any evidence of distant metastases are recommended to undergo mediastinal lymph node assessment for both diagnostic and staging purposes. However, evidence-based guidelines may not be consistently practiced across all centers. Studies have shown that patients with NSCLC infrequently undergo mediastinal staging via mediastinoscopy or EBUS-TBNA. The authors sought to compare practice patterns of diagnostic and staging strategies in patients with lung cancer and mediastinal lymphadenopathy to guidelines



STUDY DESIGN

Retrospective cohort analysis of two datasets: The National Cancer Institute Surveillance, Epidemiology, and End Results (SEER) database and the Texas Cancer Registry (TCR). Patients were divided into 4 different subgroups:

- Evaluation consistent with current guidelines: mediastinal sampling done first (mediastinal sampling via bronchoscopy with TBNA or EBUS-guided TBNA, endoscopy with ultrasound-guided needle aspiration, mediastinoscopy, thoracoscopy, or thoracotomy with mediastinal lymph node sampling)
- Evaluation inconsistent with current guidelines: NSCLC present but mediastinal sampling performed on the second or later biopsy
- Evaluation inconsistent with current guidelines: NSCLC present and mediastinal sampling not performed
- Evaluation inconsistent with current guidelines: SCLC present

Primary outcome

Percentage of evaluation strategies consistent with current guidelines

Secondary Outcome(s)

- Percentage of evaluation strategies with mediastinal lymph node sampling at any given point prior to initiation of treatment in patients with known NSCLC
- Complications due to diagnostic evaluation (defined as pneumothorax, hemorrhage and/or respiratory failure)
- Number of diagnostic intervention(s) –tests performed within 6 months preceding initiation of treatment were included

POPULATION

Inclusion criteria

Texas Cancer Registry (TCR) or the National Cancer Institute Surveillance, Epidemiology, and End Results (SEER)

- Texas resident or SEER Medicare Cohort
- Age 66-90
- Year of diagnosis 2001-2007 (TCR) vs 1995-2007 (SEER)
- Only one primary cancer
- Evidence of regional spread (M0, N1-3)
- NSCLC or SCLC
- Medicare Part A&B at least 6 months
- Not in HMO within 6 months of cancer
- Received treatment
- Medicare data available

Exclusion criteria

T4 disease

Baseline characteristics

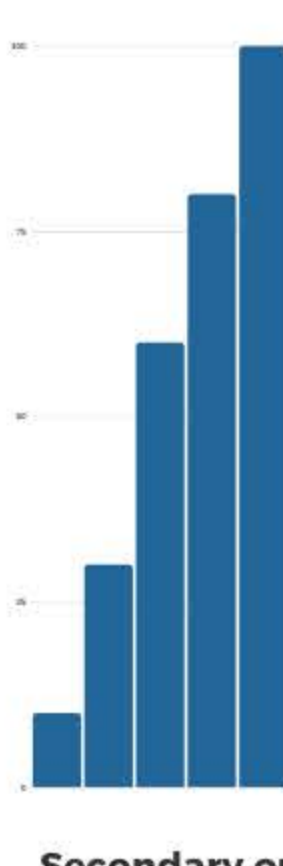
Sample size: 15,316
Gender: Male (53.42%)

Race: Non-Hispanic white (84.48%) vs Hispanic (4.68%) vs Non-Hispanic Black (7.28%) vs Non-Hispanic Other (3.57%)

Cancer type: NSCLC (86.12%) vs SCLC (13.88%)

Cancer staging: T1B (20.94%), T2 (49.83%), T3 (8.84%)

OUTCOMES



Primary outcome

21% of patients underwent mediastinal sampling as the first invasive test as recommended by current guidelines. Out of those 21%, 85% had NSCLC and 15% had SCLC. Of all patients with NSCLC, 44% never had mediastinal sampling prior to treatment.

Patients with stage II disease were more likely to have received guideline-consistent care ($p < .001$). Furthermore, among patients with NSCLC who did not have mediastinal sampling first, those with stage II more frequently underwent subsequent mediastinal staging than those with more advanced disease, including stage IIIA and IIIB (67% vs 34% vs 16%, respectively; $p < .001$).

Secondary outcomes

44% of patients with NSCLC had mediastinal sampling prior to initiation of treatment. For the other secondary outcomes, please see below (adverse events).

Adverse events

The overall incidence of complications, including pneumothorax following mediastinoscopy and CT-guided biopsy, hemorrhage after bronchoscopy, and respiratory failure post thoracotomy was significantly lower in patients who underwent guideline-directed care. This was associated with the fact that those who had guideline-directed care had significantly fewer CT-guided biopsies compared to those who had mediastinal sampling done second.

Patients who underwent guidelines-directed care also had a lower incidence of hemorrhage and respiratory failure in contrast to those who had mediastinal sampling as a second or later test.

COMMENTARY

Strengths

The study asked a clinically essential question that has been understudied. It also highlighted a large gap between guideline recommendations and its actual execution, which can have detrimental effects on patient outcomes. Moreover, it included a large sample size of 15,316 patients.

Limitations

This was a retrospective study that only included Medicare patients; therefore, the results are not generalizable. Furthermore, the actual CT and PET scan images were not reviewed, potentially falsely increasing the percentage of those who did not undergo mediastinal sampling as they may not have had enlarged lymph nodes and therefore, did not fail to comply with current guidelines.

FUNDING

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SUGGESTED READING

(References in Vancouver style)

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ARTICLE CITATION

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