

P1.345: Clinical and Social Factors Associated with Second Line Treatment Attrition in Patients with NSCLC & Actionable Alterations

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INTRODUCTION

Up to 30% of patients with non-small cell lung cancer (NSCLC) do not receive second-line therapy after progression on first-line treatment. This is especially concerning in patients with actionable alterations, where multiple additional treatment options exist.

This study examines clinical and social factors associated with second-line treatment attrition in patients with actionable alterations, to better understand barriers and inform strategies that improve treatment delivery.

METHODS

Design: Retrospective Cohort Study

Setting: MedStar Georgetown University Hospital and MedStar Washington Hospital Center

Population: Patients with metastatic NSCLC harboring actionable alterations who received first-line therapy

Eligibility Time Frame: January 2018 – September 2024

Social Vulnerability Index (SVI) Calculation:

Each patient's address was geocoded to census tracts to obtain the SVI (range 0–1), a CDC-derived measure of community-level social vulnerability, where higher values indicate greater vulnerability

Analysis: Univariable and multivariable logistic regression was performed to evaluate relationships between patient characteristics and whether received the second line treatment. Multicollinearity and sensitivity analysis was performed to ensure the robustness of results.

RESULTS

Of 235 eligible patients, **176 (75%)** experienced disease progression on first-line therapy.

Table 1. Study Cohort Characteristics Summarized by Receipt of Second-Line Therapy

Characteristic	Overall N = 176 ¹	Received Second-Line Therapy N = 138 ¹	Did not Receive Second-Line Therapy N = 38 ¹
Age at diagnosis	63 (55, 71)	62 (53, 70)	67 (60, 75)
Married	110 (64%)	93 (68%)	16 (46%)
Hispanic or Black	61 (38%)	46 (37%)	15 (42%)
SVI ²	0.26 (0.09, 0.53)	0.22 (0.07, 0.48)	0.45 (0.23, 0.80)
ECOG-PS at diagnosis: good (0-1)	109 (82%)	87 (86%)	22 (69%)
ECOG-PS at diagnosis: poor (2-4)	24 (18%)	14 (14%)	10 (31%)
Presence of CNS metastases at diagnosis	82 (47%)	68 (50%)	14 (37%)
Presence of liver metastases at diagnosis	32 (18%)	25 (18%)	7 (18%)

¹Median (Q1, Q3); n (%)

²Social Vulnerability Index

Univariable Logistic Regression Analysis (Table 2):

Older age, poor ECOG performance status (PS), and higher SVI were associated with lower odds of receiving second-line therapy

Table 2. Univariable Logistic Regression Analysis of Factors Associated with Receipt of Second-Line Therapy

Characteristic	Odds Ratio (95% Confidence Interval)	p-value
Age at diagnosis (per 1-year increase)	0.95 (0.92, 0.98)	0.004
SVI (per 0.1 unit)	0.75 (0.65, 0.86)	<0.001
ECOG-PS at diagnosis: poor (2-4) vs good (0-1)	0.35 (0.14, 0.92)	0.03
Marital Status: Married vs Unmarried	2.54 (1.22, 5.39)	0.013
Race/Ethnicity: Hispanic or Non-Hispanic Black vs Non-Hispanic Other	0.81 (0.38, 1.74)	0.57
CNS metastases at diagnosis: Yes vs No	1.69 (0.82, 3.61)	0.16
Liver metastases at diagnosis: Yes vs No	0.99 (0.41, 2.67)	0.98

Multivariable Logistic Regression Analysis (Table 3):

Higher SVI was the only independent predictor of second-line treatment receipt, after controlling for age, ECOG-PS, marital status, and presence of CNS metastasis.

Table 3. Multivariable Logistic Regression Analysis of Factors Associated with Receipt of Second-Line Therapy

Characteristic	Odds Ratio (95% Confidence Interval)	p-value
Age at diagnosis	0.97 (0.93, 1.01)	0.14
SVI (per 0.1 unit)	0.78 (0.66, 0.92)	0.003
ECOG-PS at diagnosis: poor (2-4)	0.54 (0.18, 1.65)	0.27
Marital Status: Married vs. Unmarried	1.30 (0.51, 3.21)	0.57
CNS metastases at diagnosis: Yes vs No	1.80 (0.75, 4.51)	0.19

DISCUSSION AND CONCLUSION

In this real-world cohort of patients with metastatic NSCLC harboring actionable alterations, nearly a quarter did not receive second-line therapy, most often due to clinical deterioration.

Both clinical factors (older age, poorer ECOG-PS) and social factors (community-level social vulnerability) were independently associated with treatment attrition.

Actionable Take Away Message

Screening for community-level social vulnerability at first-line treatment initiation could help identify patients at risk for treatment attrition, enabling targeted support (e.g., transportation, care navigation, social work referral) to improve access to second-line therapy.

Future Direction for Research

Further research is needed to understand the relationship between both clinical and social factors to identify strategies that can help improve access to subsequent lines of therapy.

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