Predictors of Epidermal Growth Factor (EGFR) Testing among Patients with Metastatic Non-Small Cell Lung Cancer (mNSCLC) treated in the Real-World Setting

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Background

Current guidelines recommend testing for driver mutations before initiation of treatment for mNSCLC patients. EGFR mutations are the most common genetic aberrations seen in mNSCLC and treatment targeting these alterations has improved outcomes. This study aimed to explore the factors associated with EGFR testing before treatment initiation

Methods

- This is a retrospective study that evaluated real world data from community oncology practices with detailed information combining EHR, chart reviews (manual curation), and lab data
- The IntegraConnect-PQ deidentified database contains ~80% community oncology and ~20% academic practices
- Adult mNSCLC patients who initiated treatment between 01-Jan-2018 and 30-Jun-2022 were included and followed up through 31-Oct-2022
- A multivariable logistic regression was conducted to identify the predictors of EGFR testing

Results

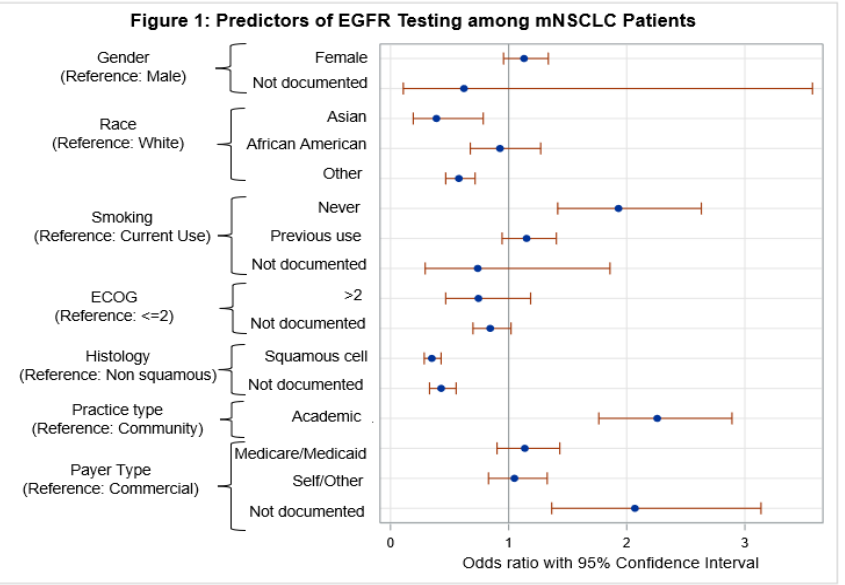
- 3,548 mNSCLC patients who initiated 1L treatment during the study identification period were included
  - Median (IQR) age was 71 (13) years with 49.1% being male and 75.6% being white
  - Histology was non-squamous in 74.9% and squamous in 15.8%, with 23.6% being treated in an academic center
- A total of 2,745 (77.4%) patients reported an EGFR test before LOT1 initiation

Table 1: Baseline demographics and clinical characteristics- mNSCLC patients

	EGFR Tested before LOT1 initiation		Unadjusted Logistic Regression	
	Yes (n= 2745)	No (n= 803)	OR (95% CI)	p-value
Age (years)				
Median (IQR)	72 (14)	72 (13)	0.99 (0.98,1.003)	0.25
Gender (n, %)				
Male	1308(47.65)	433(53.92)	Ref	
Female	1433(52.2)	368(45.83)	1.29 (1.10,1.51)	0.002
Not documented	4(0.15)	2(0.25)	0.66 (0.12,3.62)	0.64
Race (n, %)				
White	2143(78.07)	540(67.25)	Ref	
African/American	211(7.69)	59(7.35)	0.90 (0.67,1.22)	0.5
Asian	32(1.17)	13(1.62)	0.62 (0.32, 1.19)	0.15
Not documented	359(13.08)	191(23.79)	0.47(0.39,0.58)	<0.001
Ethnicity (n, %)				
Hispanic or Latino	49(1.79)	12(1.49)	Ref	
Not Hispanic or Latino	2067(75.3)	573(71.36)	0.88(0.47,1.67)	0.7
Other	629(22.91)	218(27.15)	0.71(0.37,1.35)	0.29
Smoking status (n, %)				
Current Smoker	580(21.13)	198(24.66)	Ref	
Previous Smoker	1713(62.4)	521(64.88)	1.12(0.93,1.36)	0.23
Never Smoker	436(15.88)	76(9.46)	1.96(1.46,2.62)	<0.001
Not documented	18(0.66)	8(1)	0.68(0.29,1.62)	0.38
ECOG status at index (n, %)				
ECOG <=2	1804(65.72)	518(64.51)	Ref	
ECOG >2	67(2.44)	29(3.61)	0.66(0.42,1.04)	0.07
Not documented	874(31.84)	256(31.88)	0.98(0.83,1.16)	0.82
Histology (n, %)				
Non squamous cell carcinoma	2196(80)	460(57.29)	Ref	
Squamous cell carcinoma	324(11.8)	237(29.51)	0.29(0.24,0.35)	<0.001
Other/Unknown/Not reported	225(8.2)	106(13.2)	0.45(0.35,0.57)	<0.001
PD-L1 percentage (on/before 1L initiation) (n, %)				
<1 %	898(32.71)	151(18.8)	Ref	
>=1% to < 50%	742(27.03)	112(13.95)	1.11(0.86,1.45)	0.42
>=50%	706(25.72)	131(16.31)	0.91(0.7,1.17)	0.45
Unknown/Not reported	399(14.54)	409(50.93)	0.16(0.13,0.21)	<0.001
Practice type (n, %)				
Community	2001(72.9)	711(88.54)	Ref	
Academic	744(27.1)	92(11.46)	2.87(2.28,3.63)	<0.001
Payer Type (n, %)				
Commercial	443(16.14)	161(20.05)	Ref	
Medicare/Medicaid	1143(41.64)	310(38.61)	1.34(1.08,1.67)	0.009
SelfPay/Other	941(34.28)	291(36.24)	1.17(0.94,1.47)	0.16
Unknown	218(7.94)	41(5.11)	1.93(1.32,2.82)	0.0007

mNSCLC PATIENTS ARE NOT ROUTINELY TESTED FOR EGFR IN THE REAL-WORLD SETTING

Figure 1: Predictors of EGFR Testing among mNSCLC Patients



Strengths and Limitations

- Real-World study including data enriched by manual curation
- Smaller sample size of Asian population

Conclusion

- Although guidelines have recommended testing for driver mutations for >10 years, our study highlights that asian* patients and patients with squamous cell histology still have a decreased likelihood of testing for EGFR prior to 1L initiation
- We also show that non-smokers, patients treated in an academic center have an increased likelihood of testing for EGFR prior to 1L initiation

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* *small n*
- *Ettinger DS, Akerley W, Bepler G, et al. Non–Small Cell Lung Cancer. J Natl Compr Canc Netw. 2010;8(7):740-801. doi:10.6004/jnccn.2010.0056*