

P1.374: Impact of Quality Improvement Project on Guideline Adoption and Practice in Metastatic NSCLC: A Prospective Real-World Study

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Background

- Lung cancer remains the leading cause of cancer-related morbidity and mortality in China^{1,2}. The disease burden is disproportionately concentrated in Small/Middle-tier city and County hospitals³.
- Despite the availability of evidence-based guidelines, the delivery of guideline-directed care for metastatic non-small cell lung cancer (mNSCLC) in these underserved settings is frequently delayed or discordant with current recommendations⁴.
- Previous studies have demonstrated that adherence to guideline-concordant diagnosis and treatment is associated with a 29% reduction in the 3-year risk of death among patients with NSCLC⁵. However, systematic data on guideline adoption in Small/Middle-tier and County hospitals remain scarce.
- The Lung Cancer Oncology Quality Improvement Project (QIP) was designed to evaluate whether systematic physician education and regular dynamic feedback could improve standardized diagnosis and treatment in these underserved settings. Herein, we report the primary outcomes from the prospective phase of this study.

Methods

- This multicenter, prospective, real-world study (NCT06494241) enrolled patients with newly diagnosed mNSCLC from oncology departments across 45 hospitals in China. The QIP intervention comprised comprehensive physician education aligned with national guidelines and clinical pathways, followed by reinforcement through systematic educational sessions and regular dynamic feedback.
- Primary endpoints were the proportion of patients receiving molecular testing for first-line (1L) treatment and the proportion of patients with actionable genomic alterations (AGA) receiving 1L tyrosine kinase inhibitor (TKI) therapy. Subgroup analyses were conducted according to city level (Small/Middle-tier/County) and geographic region (East/West/South/North/Middle).
- Long-term follow-up is ongoing to evaluate the impact of QIP educational intervention on patient outcomes.

References

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Results

Patient characteristics

- A total of 1000 patients were enrolled. The median age was 69 years, 61.8% were male, and 74.9% were adenocarcinoma (Table 1).

Table 1. Demographic and Clinical Characteristics of Enrolled Patients at Screening

Characteristics		Overall (N=1000)
Age, median (IQR), y		69.0 (61.0-74.0)
Sex, n (%)	Male	618 (61.8)
	Female	382 (38.2)
Smoking status, n (%)	Never smoker	596 (59.6%)
	Former smoker	269 (26.9%)
	Current smoker	135 (13.5%)
Pack-years among smokers, median (IQR)	Former smokers	37.00 (20.00, 50.00)
	Current smokers	30.00 (20.00, 50.00)
City tier, n (%)	Small/Middle-tier city hospitals	762 (76.2)
	County hospitals	238 (23.8)
Geographic region, n (%)	East	332 (33.2)
	West	155 (15.5)
	South	162 (16.2)
	North	168 (16.8)
	Middle	183 (18.3)
Histological subtype, n (%)	Adenocarcinoma	749 (74.9%)
	Squamous Carcinoma	194 (19.4%)
	Other*	57 (5.7%)
Number of organ metastasis, n (%)	< 3	844 (84.4%)
	≥ 3	156 (15.6%)
Metastatic sites, n (%)	Lung	345 (34.5%)
	Brain and/or leptomeninges	243 (24.3%)
	Bone	436 (43.6%)
	Liver	124 (12.4%)
	Adrenal gland	90 (9.0%)
	Other metastatic sites	341 (34.1%)
Recurrence, n (%)	Yes	83 (8.3%)
	No	917 (91.7%)
ECOG performance status, n (%)	0	123 (12.3%)
	1	654 (65.4%)
	2	223 (22.3%)

*Including Adenosquamous Carcinoma, Large Cell Carcinoma, Sarcomatoid Carcinoma, Salivary gland-type tumors and other rare histological subtypes.

Overall results

- 1L molecular testing was performed in 77.7% (777/1000) of patients, with AGA positive detected in 57.3% (445/777) and AGA-negative in 42.7% (332/777) (Figure 1). Individual driver gene testing rates ranged from 77.7% (777/1000) for EGFR to 45.8% (458/1000) for HER2, with most biomarkers achieving coverage of ≥70% (Figure 2).

Figure 1. Rate of 1L Molecular Testing and AGA Positive Detection

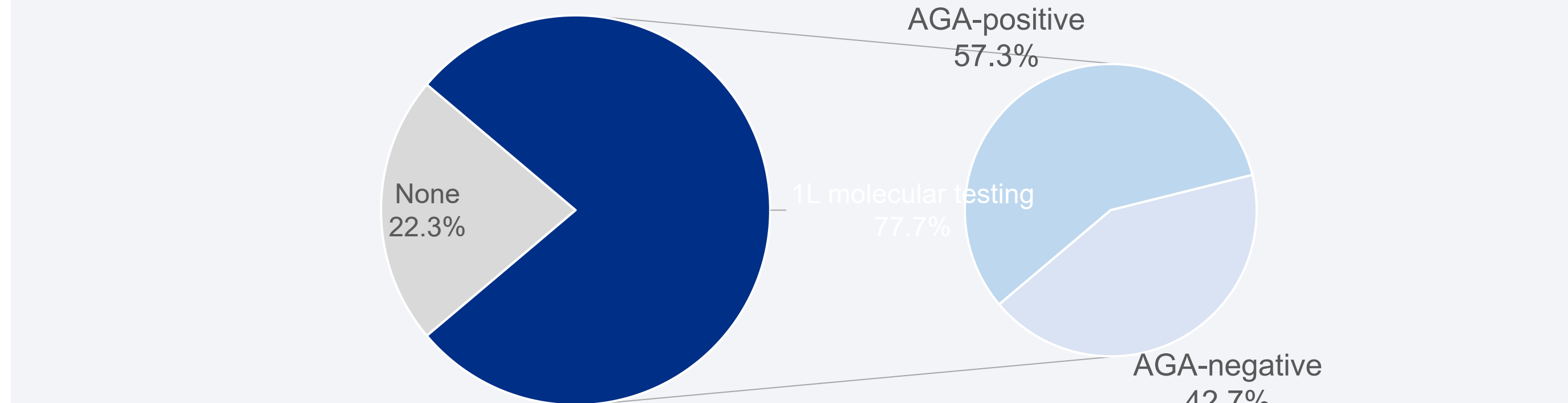
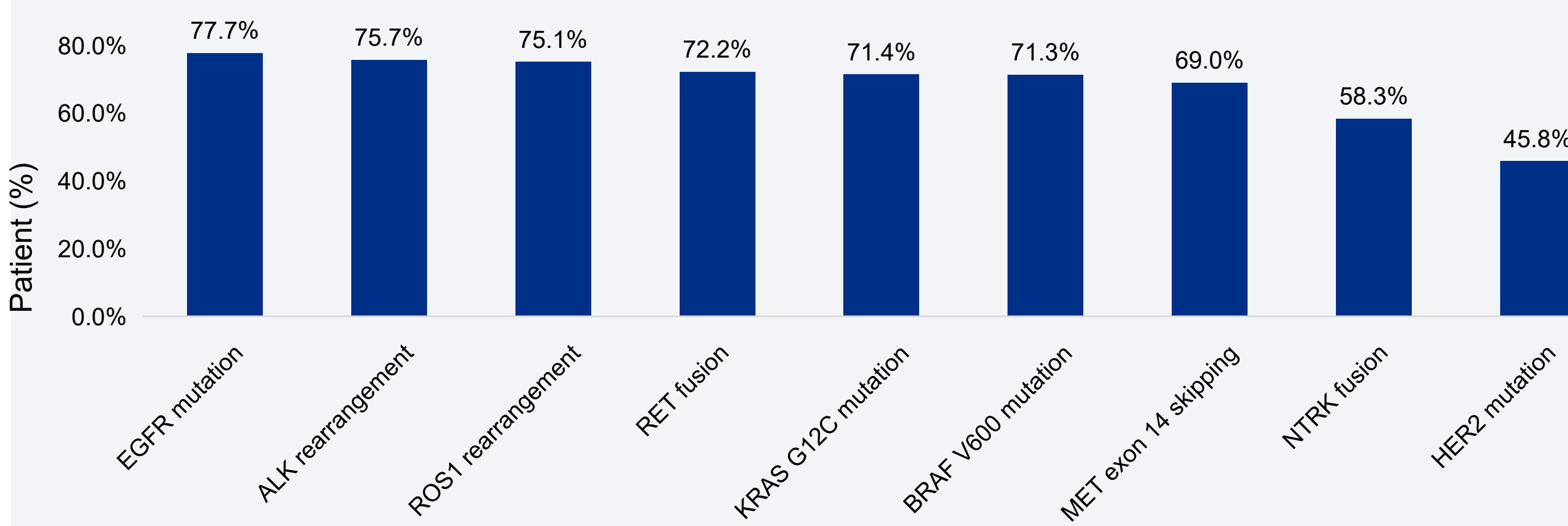


Figure 2. Rate of 1L Molecular Testing by Genomic Type



Conclusions

- This is the first prospective study to evaluate guideline adoption for the diagnosis and treatment of mNSCLC within oncology departments of Small/Middle-tier city and County hospitals following QIP intervention in China.
- These findings demonstrate that systematic QIP intervention can effectively bridge the gap between clinical guidelines and real-world practice, thereby promoting common health.

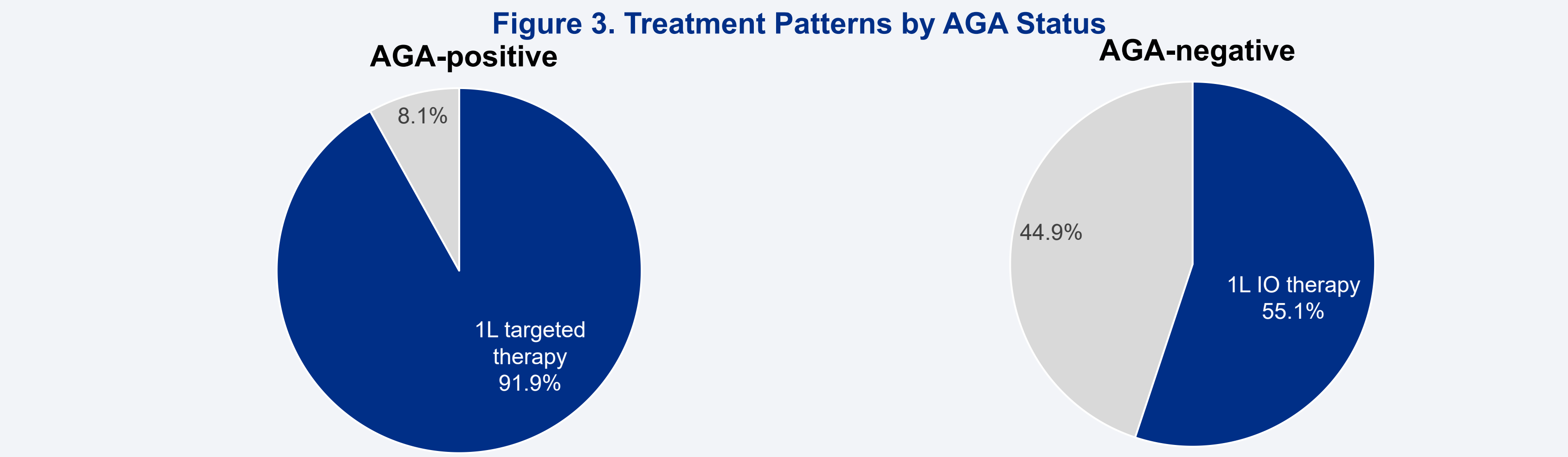
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Disclosures

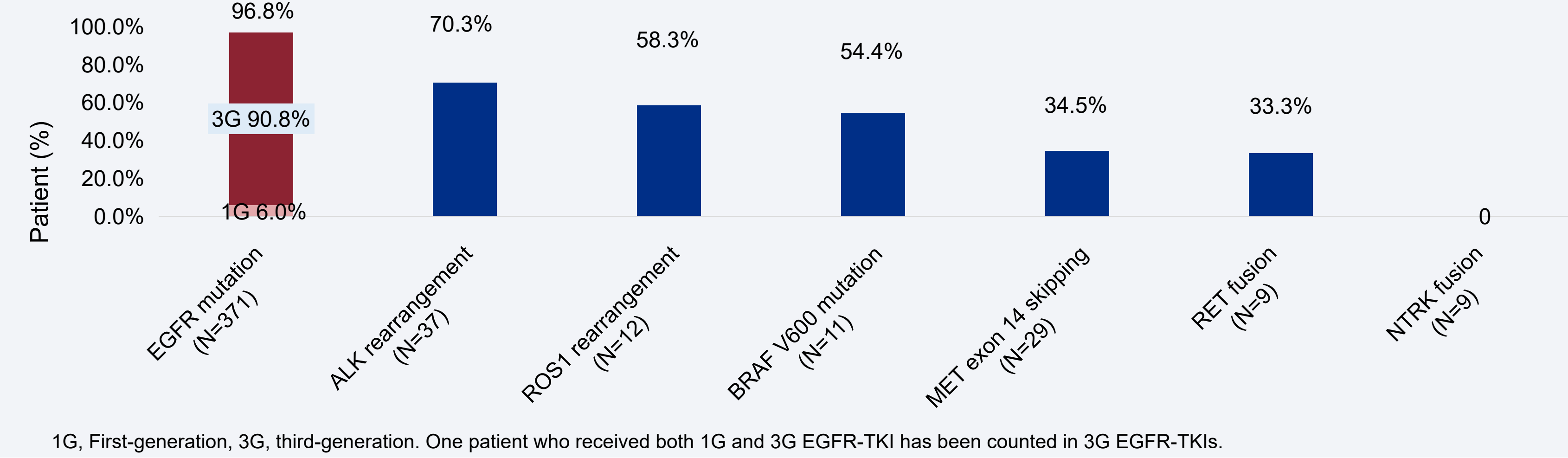
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- Among AGA-positive patients, 91.9% (409/445) received 1L targeted therapy, whereas 55.1% (183/332) of AGA-negative patients received 1L immunotherapy (IO) (Figure 3).



- Targeted therapy rates varied substantially across actionable genomic alterations. The highest rate was observed in EGFR-sensitive mutation-positive patients, followed by ALK rearrangement. In EGFR-sensitive mutation-positive patients, who constituted 47.7% (371/777) of the tested population, the EGFR-TKI treatment rate was 96.8% (359/371), with third-generation TKIs administered in 90.8% (337/371) (Figure 4).

Figure 4. Targeted Therapy Use by Genomic Type



Subgroup analysis

- Sites in Small/Middle-tier cities displayed numerically higher 1L molecular testing rate than that in County, with a comparable rate of 1L targeted therapy and higher rate of IO therapy.
- Regionally, 1L molecular testing rates ranged from 69.0% to 80.9%, with notably lower rate in North. 1L targeted therapy rates ranged from 88.0% to 98.8%, consistently exceeding the QIP target of 85%. 1L immunotherapy rates ranged from 48.8% to 64.4%, with South being the only region exceeding 60% (Table 2).

Table 2. The Rate of 1L Molecular Testing and 1L Targeted/IO Therapy in Small/Middle-tier city, County, and Different Regions

	Small/middle-tier city (n=762)	County (n=238)	East (n=332)	West (n=155)	South (n=162)	North (n=168)	Middle (n=183)
1L molecular testing rate	80.7% (615/762)	68.1% (162/238)	78.0% (259/332)	80.0% (124/155)	80.9% (131/162)	69.0% (116/168)	80.3% (147/183)
1L targeted therapy rate	92.0% (334/363)	91.5% (75/82)	88.0% (125/142)	98.8% (80/81)	95.8% (69/72)	91.3% (63/69)	88.9% (72/81)
1L EGFR-TKIs therapy rate	96.4% (292/303)	98.5% (67/68)	95.3% (102/107)	100% (70/70)	100% (62/62)	95.2% (60/63)	94.2% (65/69)
1L IO therapy rate	57.1% (144/252)	48.8% (39/80)	53.8% (63/117)	48.8% (21/43)	64.4% (38/59)	53.2% (25/47)	54.5% (36/66)