Timing of Next-Generation Sequencing (NGS) Relative to First-Line Therapy in Lung Cancer: Insights from the Global WAYFIND-R Registry

E-poster

https://ter.li/d9xxpe

RWD111

Rodrigo Dienstmann,[1,2,3] Christophe Le Tourneau,[4] Jean-Yves Blay,[5,6] Jan Geissler,[7] Ana Ferro,[8] Eleanor Cheese,[8] Erika Schirghuber,[9] Allan Hackshaw[10]

[1]Oncoclínicas Group, São Paulo, Brazil; [2]University of Vic – Central University of Catalonia, Barcelona, Spain; [3]Vall d'Hebron Institute of Oncology, Barcelona, Spain; [4]Institut Curie, Paris, France; [5]Centre Léon Bérard, Lyon, France; [6]Université Claude Bernard, Lyon, France; [7]Patvocates GmbH, Riemerling, Germany; [5]Roche Products Limited, Welwyn Garden City, UK; [6]F. Hoffmann-La Roche Ltd, Basel, Switzerland; [10]UCL Cancer Institute, London, UK

Introduction

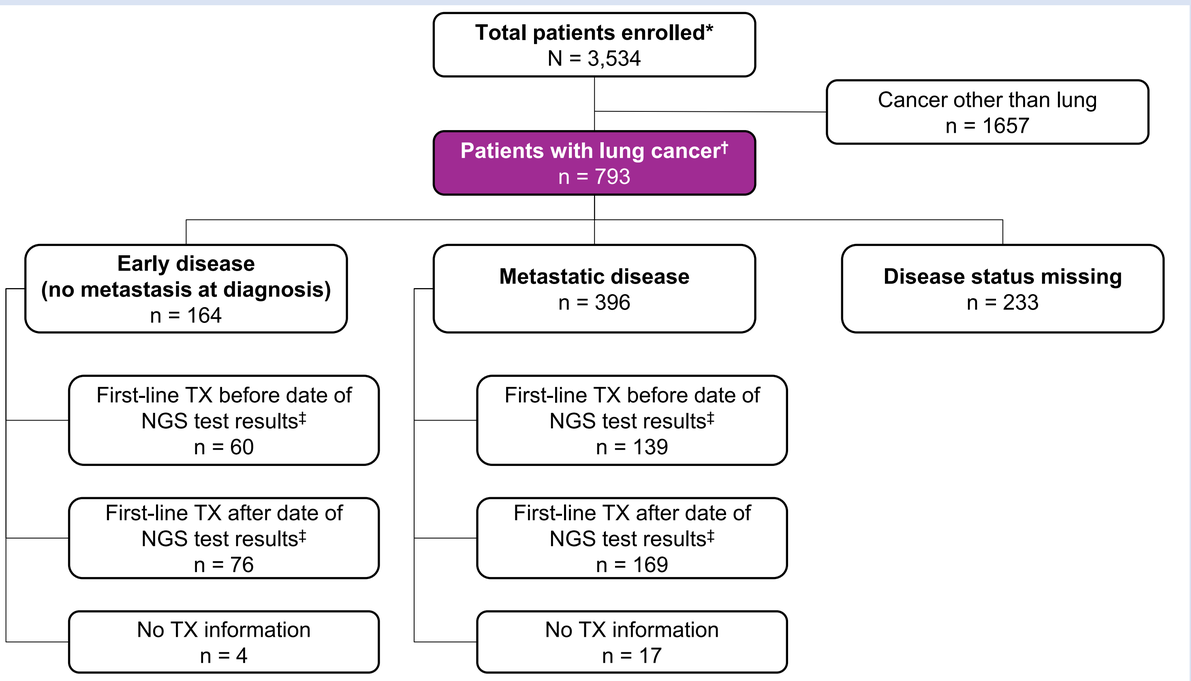
- Lung cancer remains one of the most frequently diagnosed cancers and the most frequent cause of all cancer deaths globally;[1] early-stage diagnosis is crucial for improving patient outcomes.[2]
- NGS techniques can identify an array of cancer driver mutations, thereby providing a tumour-specific molecular profile.[3]
- Molecular profiling of tumours to guide personalised therapy can improve patient outcomes compared with standard-of-care therapies.[4–7]
- Further real-world evidence on NGS utilisation and its clinical impact on treatment selection is required.

Methods

- WAYFIND-R (NCT04529122) is a global, prospective pan-cancer registry of patients with a malignant solid tumour who have undergone NGS profiling, which collects long-term, high-quality, real-world data on patient characteristics and outcomes.[6–8]
- We analysed anonymised data (Observation Medical Outcomes Partnership common data model) from patients with lung cancer in the WAYFIND-R registry, describing real-world treatment patterns.[9]
- Data were analysed within the trusted research environment of the WAYFIND-R Data Sharing and Collaboration Platform.[10]

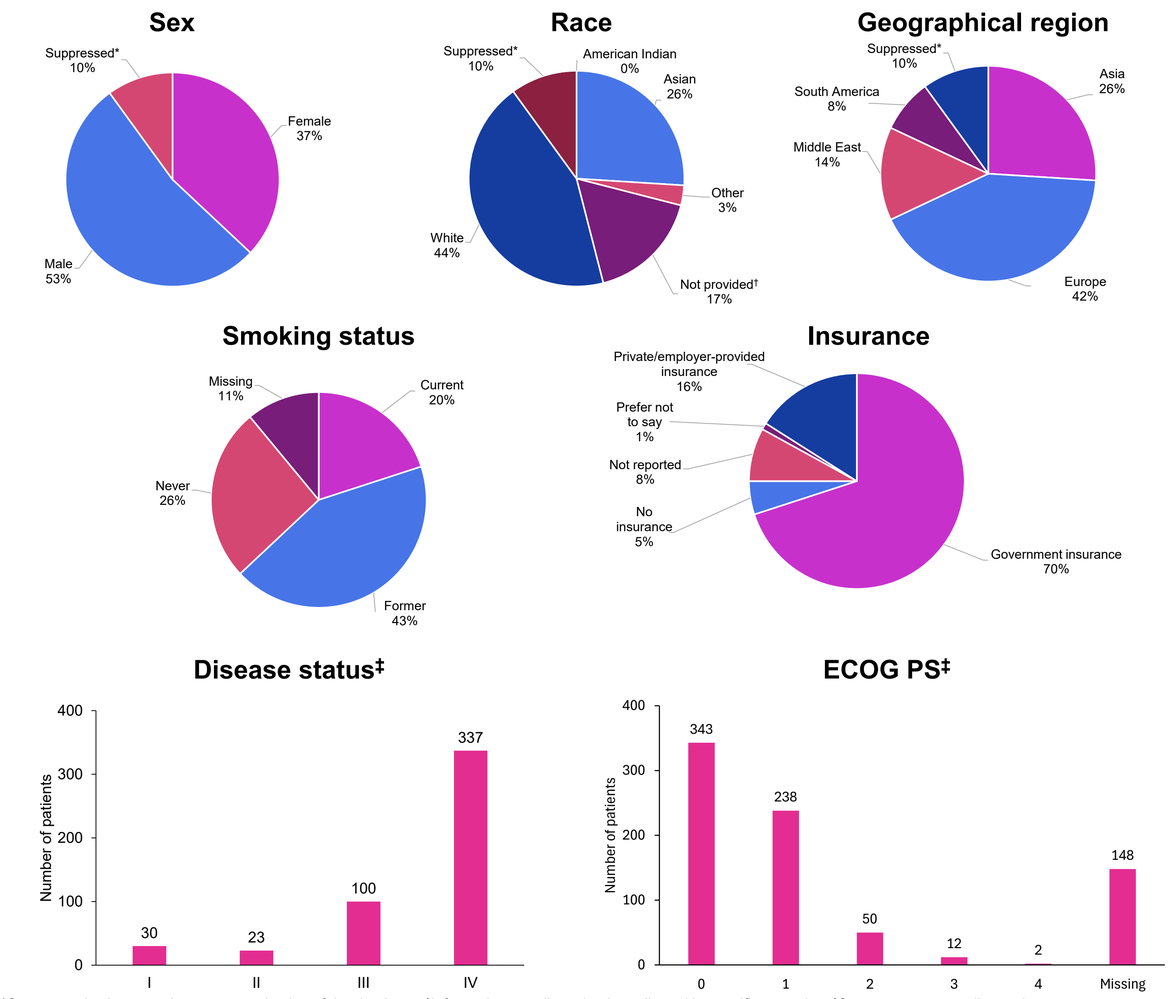
Results

Figure 1A. Patient attrition



*Data cut-off: 13 June 2024; of these patients, 362 did not have complete baseline data and 722 did not have complete cancer information so were not included in this analysis. †Patients with complete baseline data and complete cancer information. ‡The sum does not equate to the n of patients per disease status as patients could have multiple treatments. NGS, next-generation sequencing; TX, treatment.

Figure 1B. Patient demographics and disease characteristics



*Suppressed values are due to anonymisation of the database. †Information not allowed to be collected in specific countries. ‡Statuses at current diagnosis. ECOG PS, Eastern Cooperative Oncology Group performance status; NGS, next-generation sequencing.

Figure 2A. Median time (days) from the date of NGS test result to initiating first-line TX

	Before NGS, n*	After NGS, n*	First line before NGS results†	First line after NGS results†
Total	283	420	83	14
By geographical region				
Asia	42	114	32	6
Europe	160	191	63	15
Middle East	29	74	29	21
South America	22	18	254	10.5
Suppressed‡	30	23	202	15
By biospecimen				
Tissue	201	252	53	13
Liquid	64	39	370	14
By TX type				
CT	153	110	48	19.5
CT + CIMT	62	73	46	11
ET	2	0	319	
CIMT	36	56	94	28
Targeted	45	78	291	5

*n is the number of patients in each category. †Numbers in the bar chart are median time (days). ‡Suppressed values are due to anonymisation of the database. CIMT, cancer immunomodulating therapy; CT, chemotherapy; ET, endocrine therapy; NGS, next-generation sequencing; TX, treatment.

Figure 2B. Prevalence of known oncogenic targets in lung cancer according to type of alteration

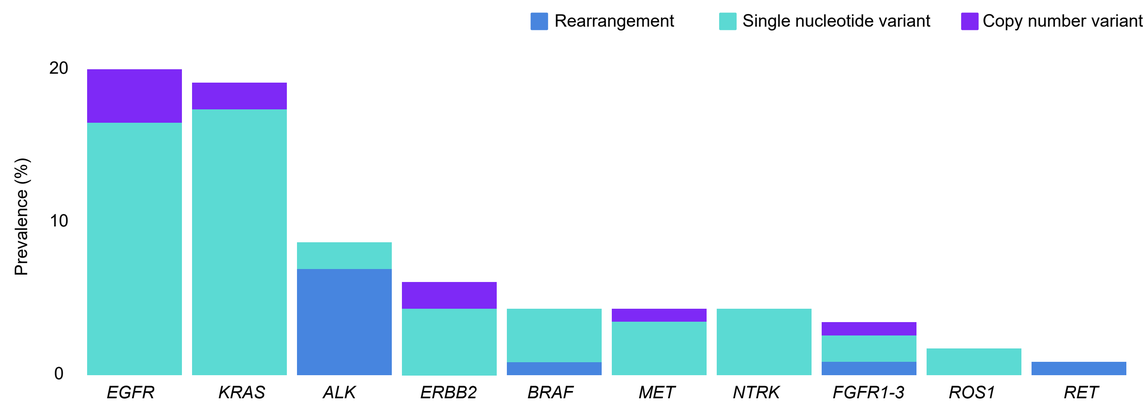
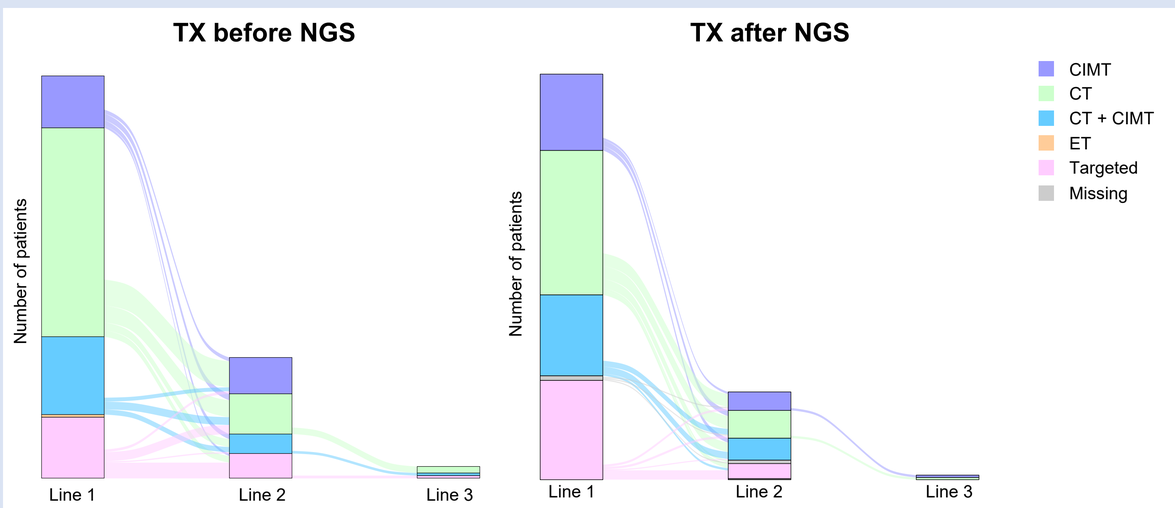


Figure 3. Sequence of TX before and after date of NGS test results



CIMT, cancer immunomodulating therapy; CT, chemotherapy; ET, endocrine therapy; NGS, next-generation sequencing; TX treatment.

- Patient attrition and demographics are shown in **Figures 1A and B**, respectively.
- Median age at diagnosis was 65 years (range: 26–90 years).
- Of the 365 patients with metastatic/recurrent disease with treatment data available, 40.3% received first-line therapy before NGS test results were available (treatment before NGS results) and 59.7% received first-line therapy after NGS test results were available (treatment after NGS results).
- Most NGS testing was performed in tissue samples (78.0%); median time from diagnosis to NGS results was 269 days for patients with treatment before NGS results and 24 days for patients with treatment after NGS results.
- **Figure 2A** shows the median time between NGS results and initiation of treatment.
- The targetable oncogenic driver alterations in lung cancer are shown in **Figure 2B**. *EGFR* and *KRAS* were the most frequently detected genes, particularly of the single nucleotide variant type.
- Overall, 21.0% of patients were discussed by molecular tumour boards.
- For treatment before NGS test results and treatment after NGS test results, respectively, first-line therapy was chemotherapy alone in 51.9% and 33.3% of patients; chemotherapy plus cancer immunomodulating therapy in 21.7% and 24.8%; cancer immunomodulating therapy alone in 10.0% and 15.3%; and targeted therapy in 15.4% and 26.6% (**Figure 3**).

Conclusions

- In this cohort of lung cancer patients, a larger proportion of patients, including in those with recurrent/metastatic disease (43.0%), received first-line treatment after NGS results than before NGS results were available.
- More patients received cancer immunomodulating or targeted therapy in the group that had access to NGS test results before starting treatment compared with those who started treatment without these test results.
- For patients who started treatment before receiving NGS results, the time to initiating first-line targeted therapy was long (median 291 days). A higher proportion of patients who began their treatment before obtaining NGS results continued with targeted therapies in subsequent lines compared with those who started treatment after receiving NGS results.
- WAYFIND-R registry data will allow further studies on real-world NGS use and how it impacts treatment decisions and patient outcomes in routine cancer care through the research platform environment.

Please contact the lead author at rdienstmann@vhio.net for permission to reprint and/or distribute. Presented at ISPOR Europe 2024, 17–20 November, 2024, Barcelona, Spain. The cut-off date for the data presented here is Jun 2024 vs Feb 2024 for the abstract; therefore, the data between the two differs slightly.

References

1. Bray F, *et al. CA Cancer J Clin*. 2024; **74(3)**:229-263; 2. Balata H, *et al. J Clin Oncol* 2022; **34(11)**:708-715;
3. Mehta A, *et al. Appl Cancer Res 2020;* **40(4)**; 4. Schwaederle M, *et al. JAMA Oncol* 2016; **2(11)**:1452–1459;
5. Schwaederle M, *et al. J Clin Oncol* 2015; **33(32)**:3817–3825; 6. Jardim DL, *et al. J Natl Cancer Inst* 2015; **107(11)**:djv253;
7. Krämer A, *et al. Lancet* 2024; **404(10452)**:527–539; 8. Le Tourneau C, *et al. JCO Precis Oncol* 2022; **6**:e2200019;
9. ClinicalTrials.gov Identifier: NCT04529122. Accessed August 2024; 10. Roche. https://platform.wayfind-r.com. Accessed August 2024.

Acknowledgements

We thank the patients and their families who take part in WAYFIND-R, as well as the staff, research coordinators and investigators at each participating institution. Research support in the form of third-party writing/printing assistance for this poster, furnished by Katie Wilson, PhD, Alexis J Mufweba, PhD, and Eleanor Porteous, MSc, of Nucleus Global (an Inizio company) was provided by F. Hoffmann-La Roche Ltd.

Disclosures

RD reports relationships/activities/interests with F. Hoffmann-La Roche Ltd, Oncoclínicas, Trialing, Merck, Boehringer Ingelheim, Ipsen, Sanofi, MSD Oncology, Servier, Amgen and Libbs. All authors received research support in the form of third-party medical writing assistance for this poster from F. Hoffmann-La Roche Ltd. Please refer to the abstract for all author conflicts of interest. This analysis was sponsored by F. Hoffmann-La Roche Ltd.