Precision Medicine Decision-Making in Metastatic Non-Small Cell Lung Cancer at Portuguese Hospitals

HSD123

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INTRODUCTION / OBJECTIVES

Lung cancer treatment remains challenging despite numerous available therapies. The progress of next-generation sequencing (NGS) technologies has raised high expectations for precision-medicine approaches, but its success depends on the integration of genetic insights into clinical practice.[1] This study aims to explore the relationship between metastatic non-small cell lung cancer (mNSCLC) diagnosis and Portuguese physicians' treatment decisions, focusing on the impact of genetic information on therapeutic choices.

METHODS

A nationwide panel of 11 medical experts with experience in treating NSCLC completed an electronic questionnaire on clinical practices for diagnosing and treating mNSCLC patients. Stated preferences for treatment options in first, second, and third-line were elicited based on the test used (IHC, FISH, DNA-NGS, DNA+ RNA-NGS, DNA sequencing, and RT-PCR) and genetic variants involved (ALK, BRAF V600, EGFR, EGFR exon20, HER2, METex14, NTRK, RET, ROS1). Data were analyzed for frequency and central tendency measures.

RESULTS

Most hospital centers test for genetic variants quite frequently (>70% for all variants), primarily through reflex testing in the initial assessment, regardless of disease stage (64-73%), with NGS of DNA and RNA being the preferred technique used (60-73%).

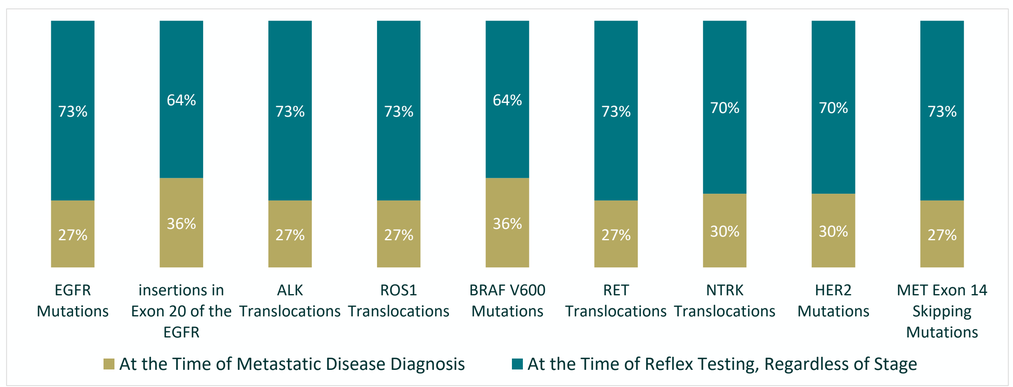


Figure 1. Identification of the oncogenic driver mutation.

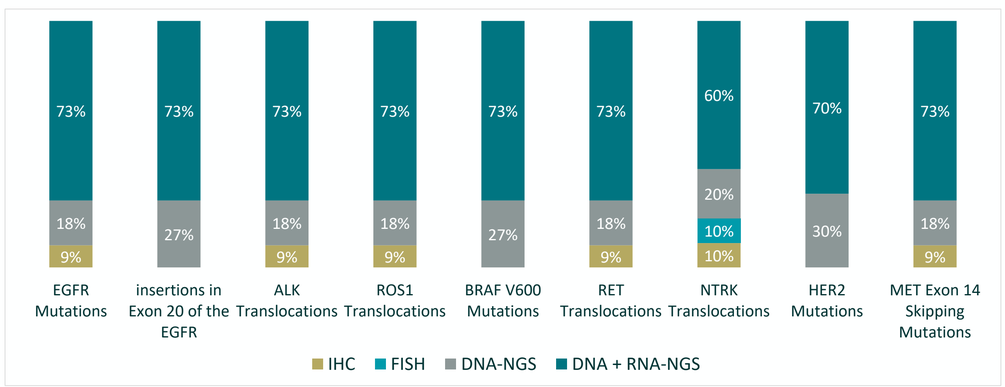
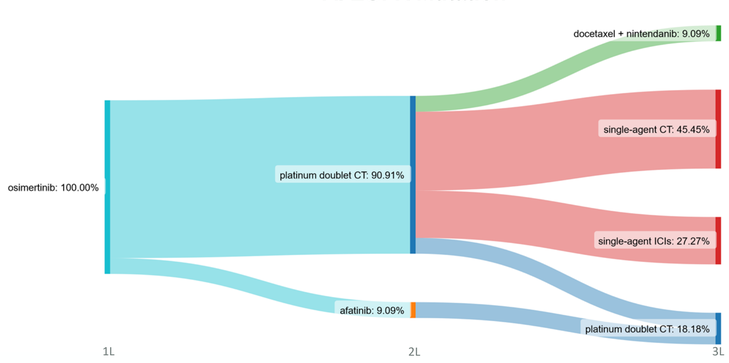
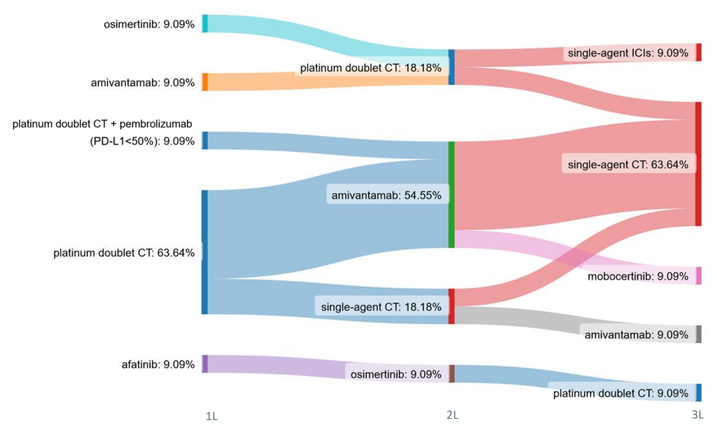
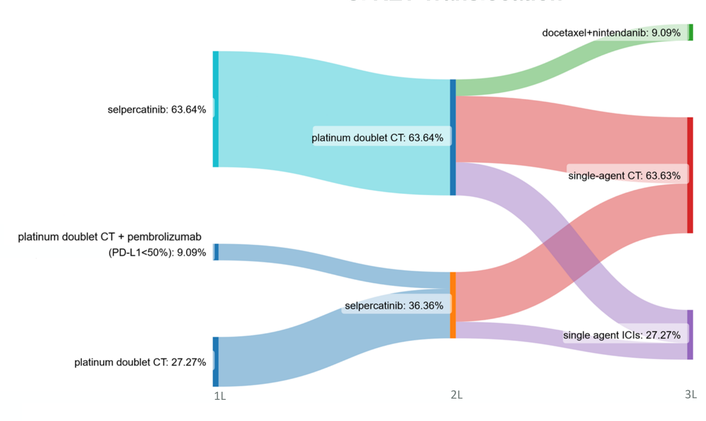
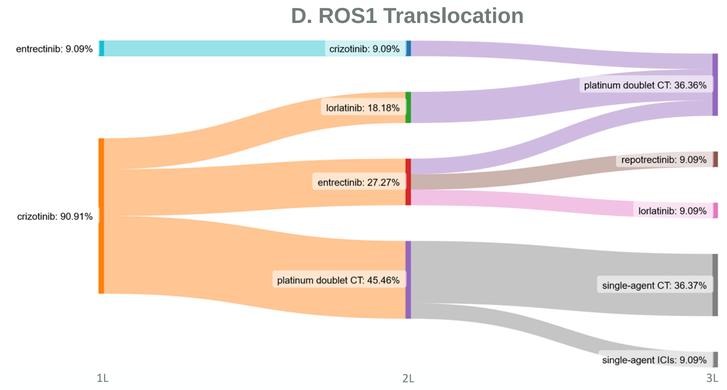


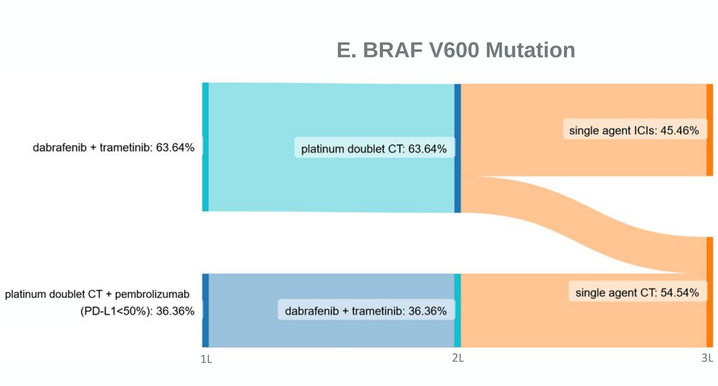
Figure 2. Diagnostic method for oncogenic driver mutation detection.

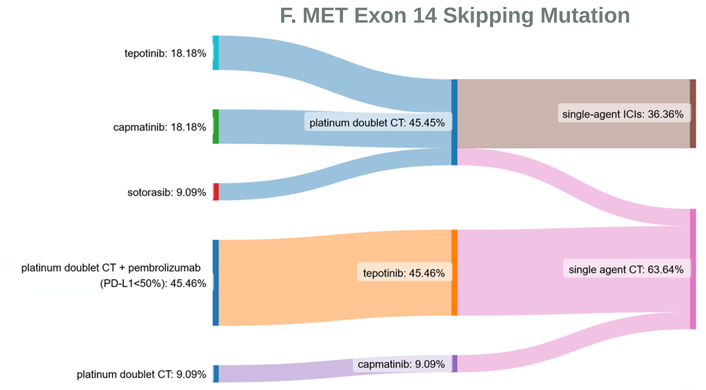


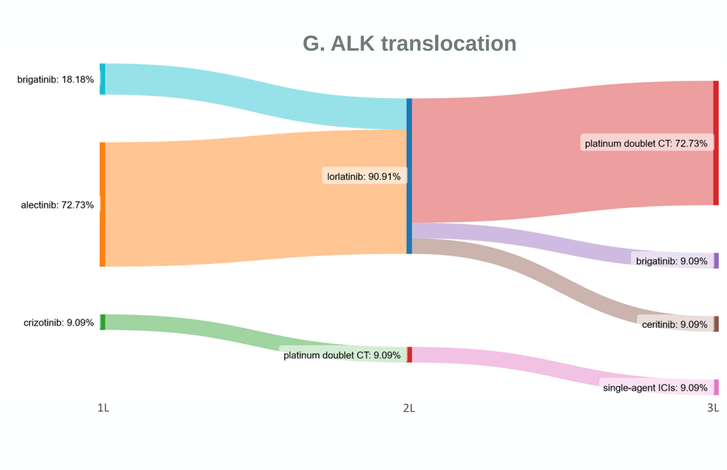


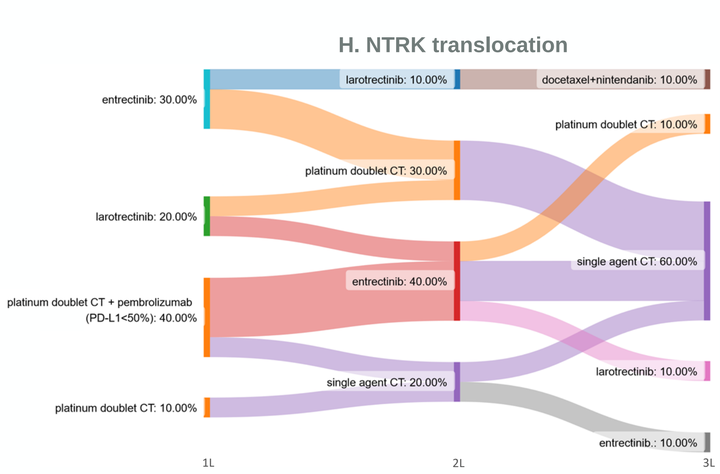












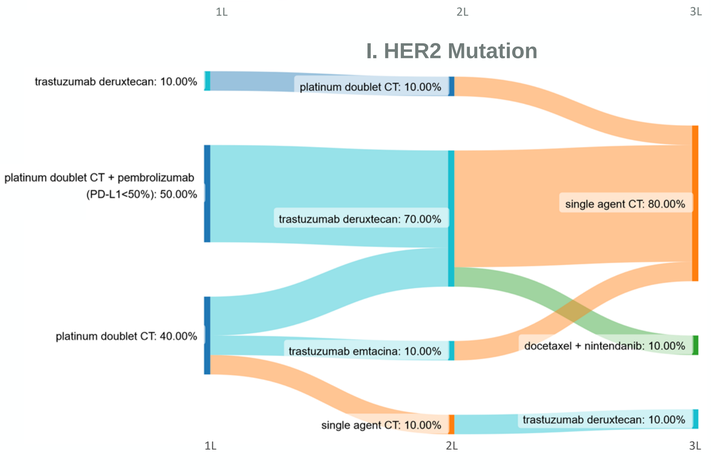


Figure 3. Treatment sequencing used in clinical practice for patients with mNSCLC based on the identified driver mutation. ABBR: 1L: First-line; 2L: Second-line; 3L: Third-line; CT: Chemotherapy; ICI: Immune Checkpoint Inhibitors.

= DISCUSSION/CONCLUSION

In Portuguese hospitals, the treatment of metastatic non-small cell lung cancer is guided by precision medicine, with therapies tailored to specific driver mutations. For EGFR mutations, osimertinib is the preferred first-line therapy, followed by platinum-based doublets. In cases of EGFR exon 20 insertions, treatment consists of platinum-doublets combined with amivantamab. ALK translocations are managed with alectinib as the first line, with lorlatinib as the subsequent option. For ROS1, BRAF V600, and RET mutations, the first-line treatments are crizotinib, dabrafenib plus trametinib, and selpercatinib, respectively. MET exon 14 skipping mutations are initially treated with platinum-doublets plus pembrolizumab, followed by either further platinum-doublets or tepotinib. **Across most Portuguese hospitals, the detection of genetic variants, the techniques and timing of these tests, as well as the choice of therapies, generally adhere to European Society for Medical Oncology (ESMO) guidelines**.[1]

[1] Hendricks LE et al. Ann Oncol. 2023;34(4):339-57

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