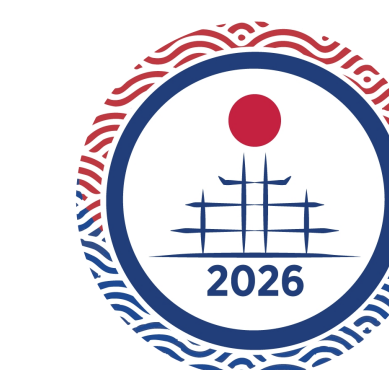




EP06.28: Perioperative Discordance of Genomic Alterations and PD-L1 Expression in Resectable Stage I-III Non-Small Cell Lung Cancer

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INTRODUCTION

Study Focus

- Compare pre- vs postoperative genomic alterations and PD-L1 expression
- Identify clinically relevant biomarker discordance

Key Message

- Dynamic monitoring of molecular biological markers before and after surgery is crucial for decision-making regarding clinical treatment plans.

METHODS

Study design: Single-center retrospective study of surgically treated, pathologically confirmed NSCLC at Shanghai Chest Hospital from Jan 2022 to Jan 2024.

Eligibility: Patients with paired preoperative biopsy/cytology or blood results and postoperative surgical specimen results for molecular profiling and/or PD-L1 testing, with complete clinicopathologic data.

Analysis cohorts: 197 patients with paired molecular results; 60 with paired PD-L1 results.

Assessments: Perioperative changes in actionable driver alterations (EGFR, KRAS, BRAF, ERBB2, MET exon 14, etc.), co-mutations (TP53, RB1), and PD-L1 TPS categories (<1%, 1–49%, ≥50%).

Definitions: Discordance was defined as gain, loss, switch, or acquisition of new functional alterations; PD-L1 change was defined as a shift between TPS categories.

Statistics: Descriptive analysis was performed in patients with paired pre-/postoperative data.

DISCUSSION AND CONCLUSION

Actionable Take Away Message

- Perioperative discordance in genomic alterations and PD-L1 exists in resectable stage I–III NSCLC.
- Such changes may affect postoperative targeted therapy and immunotherapy selection.
- Postoperative biomarker reassessment should be considered when treatment decisions depend on biomarker status.

Future Direction for Research

- Prospective multicenter studies are needed to validate these findings.
- Future work should identify patients who benefit most from postoperative retesting.
- Studies should assess whether postoperative result-guided treatment changes improve clinical outcomes.

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Artificial Intelligence (AI) Use Disclaimer

No artificial intelligence was used

RESULTS

- **514 patients with stage I–III NSCLC were included**
 - 197 with paired pre-/postoperative molecular profiling
 - 60 with paired pre-/postoperative PD-L1 testing
- **10.2% (20/197) showed driver alteration discordance**
 - including gain, loss, or switch of actionable mutations
- **24.9% (49/197) showed co-mutation changes**
 - mainly involving TP53
- **38.3% (23/60) showed PD-L1 category changes**
 - mostly decreased PD-L1 expression postoperatively

Perioperative biomarker changes were clinically meaningful and not uncommon in resectable stage I–III NSCLC.

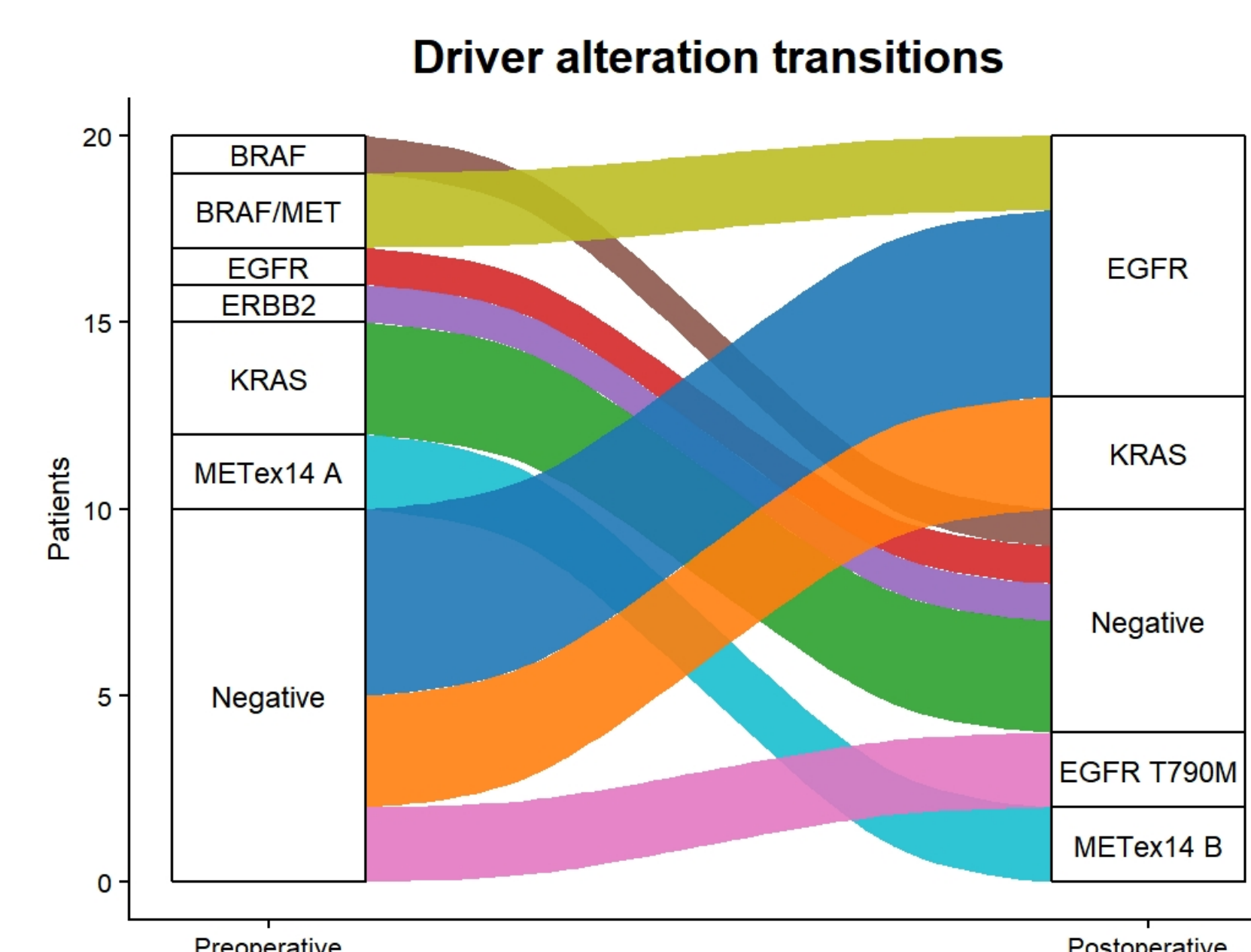


Figure 1. Sankey diagram of driver alteration transitions between preoperative and postoperative samples in 20 discordant cases.

Direction of PD-L1 expression changes

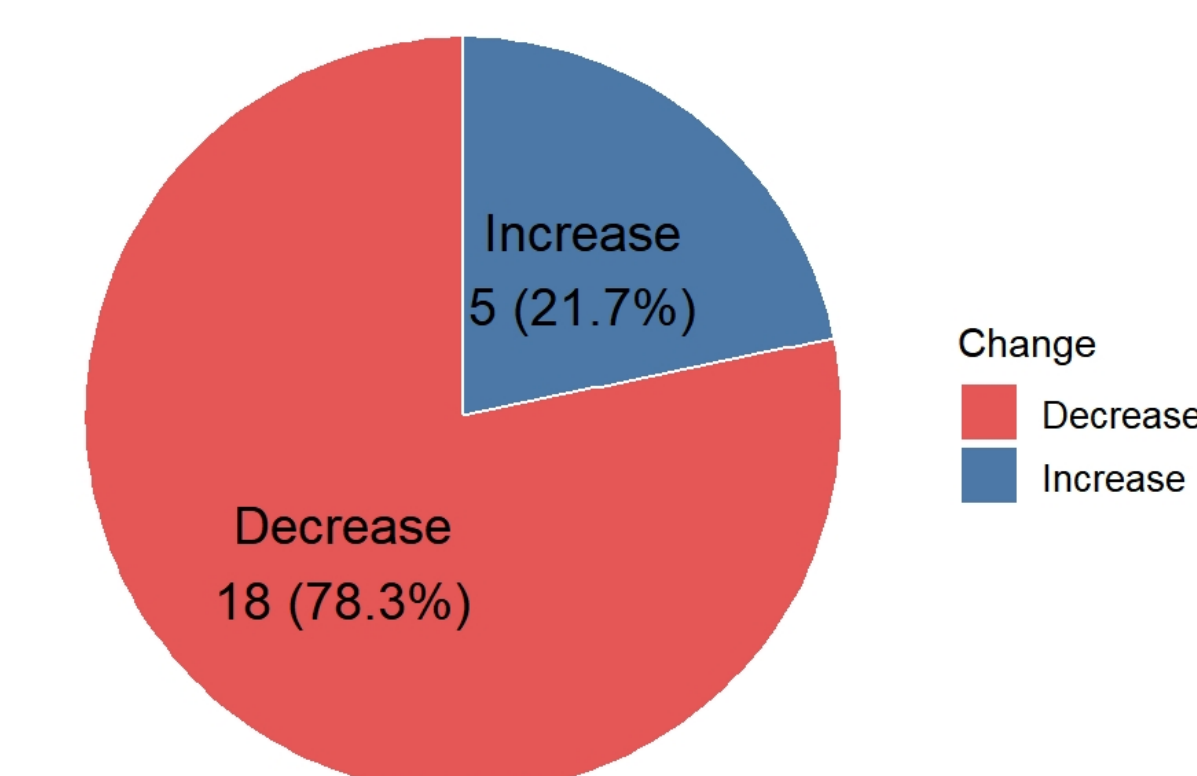


Figure 3. Pie chart showing the direction of PD-L1 expression category changes among 23 patients with altered PD-L1 status.

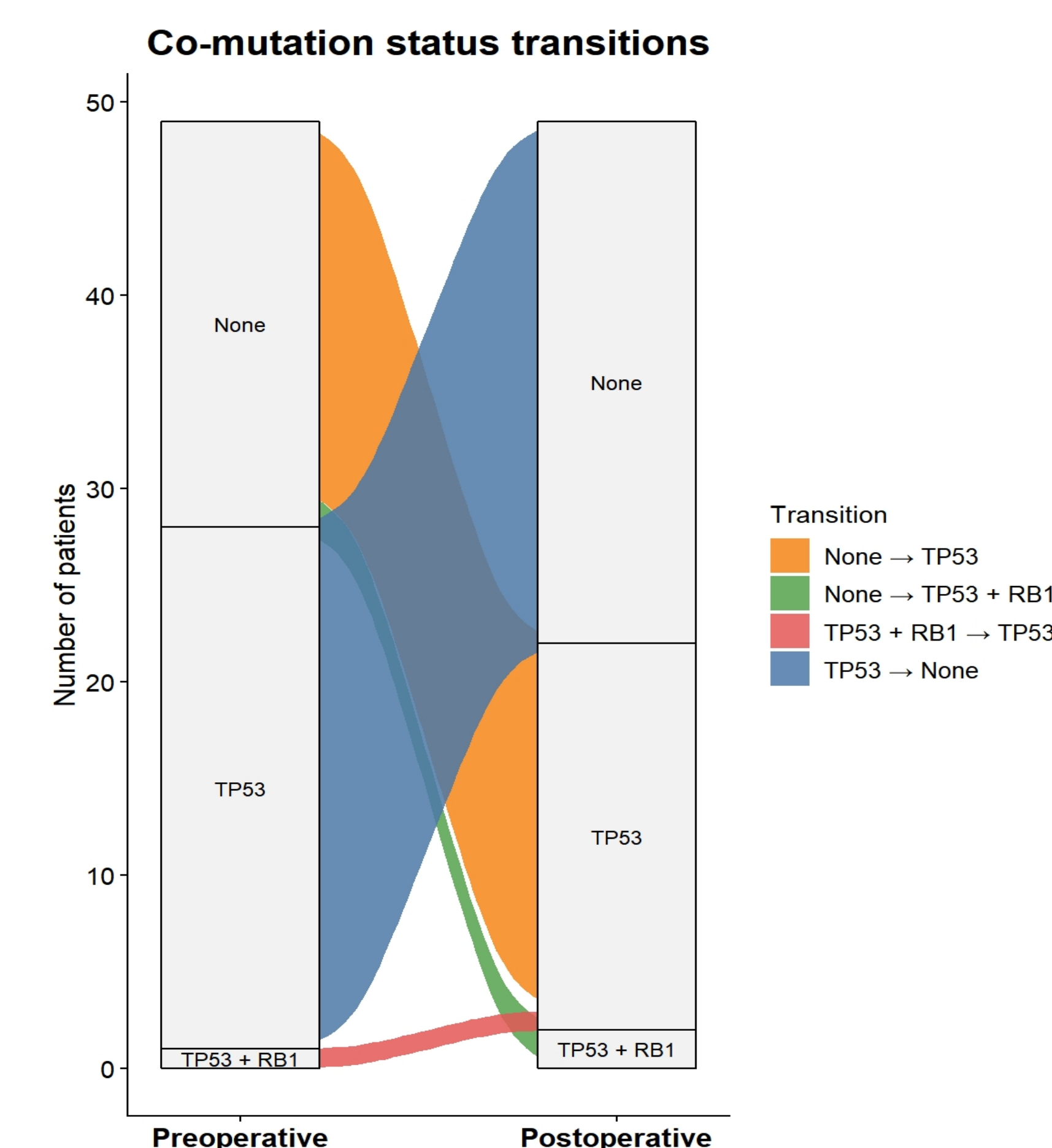


Figure 2. Sankey diagram of co-mutation status transitions between preoperative and postoperative samples in 49 patients with altered co-mutation profiles.