When to Use Liquid Biopsy

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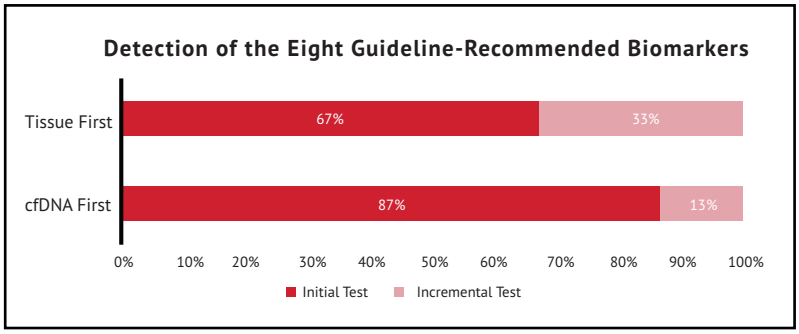
The use of liquid biopsy or molecular analysis at the time of diagnosis and before initial treatment has three benefits to the patient.

- It provides a complete molecular diagnosis when combined with tissue biopsy.
- It identifies patients who will benefit from immunotherapy.
- It reduces time from diagnosis to first-line treatment.

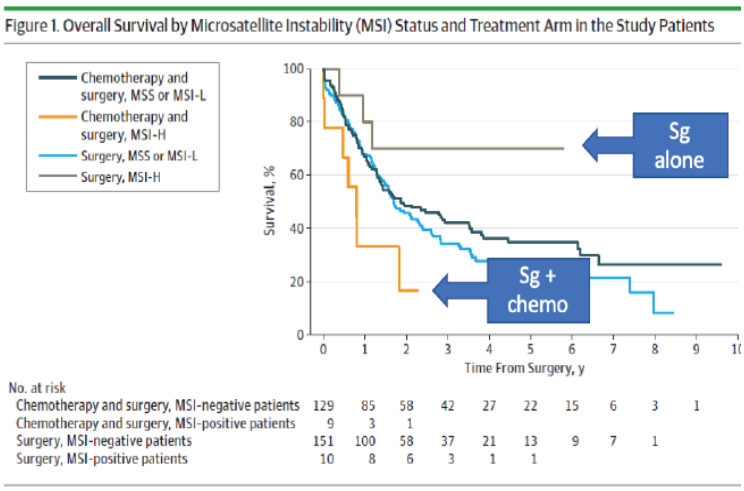
Combination of Liquid and Tissue Biopsy

The combination of liquid and tissue biopsy identifies more actionable mutations.

Tissue-only molecular testing missed 33% of mutations in the National Comprehensive Cancer Network (NCCN) Guidelines. Liquid biopsy (plasma cfDNA testing) missed 13% of guideline mutations. Used together, tissue and liquid biopsies provided a more complete picture of the tumor's molecular makeup.



Determining the Right Treatment



Liquid biopsy can identify which patients and tumors will benefit from immunotherapy.[2] Oncologists should know the status of PD-L1 and MSI-H to determine if first-line immunotherapy treatments are warranted. MSI-H testing is vitally important to avoid chemotherapy harm since chemotherapy is ineffective in MSI-H cancers.

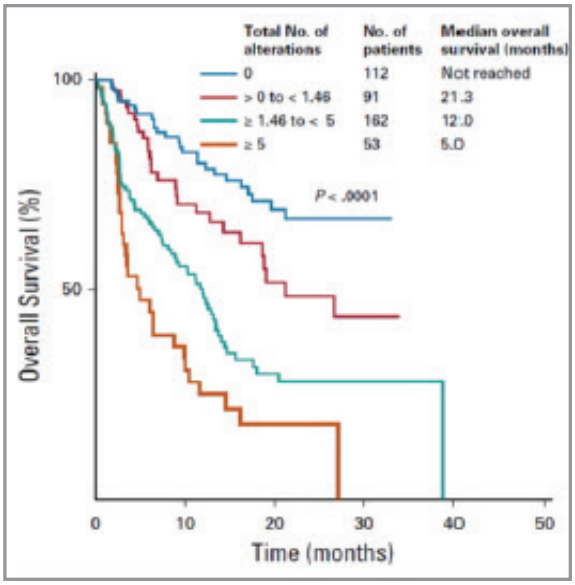
A 3-year landmark study demonstrated parallel survival benefits when using plasma cfRNA PD-L1 compared to tissue PD-L1 as an indication for immunotherapy.

Patient outcomes are optimal when first-line treatments align with tumor biology.

Understanding Cancer Severity

Liquid biopsy may provide a systemic assessment of the patient's health or indication of metastasis away from the primary cancer site. Higher numbers of alterations found correlate to lower survival rates in patients with advanced cancers.

This may be an indication of more aggressive tumor biology and has the potential for clinically meaningful, tumor-agnostic use in the diagnosis of advanced cancers. Additional testing may be warranted.[3]



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Understanding Treatment Effectiveness and Recurrence

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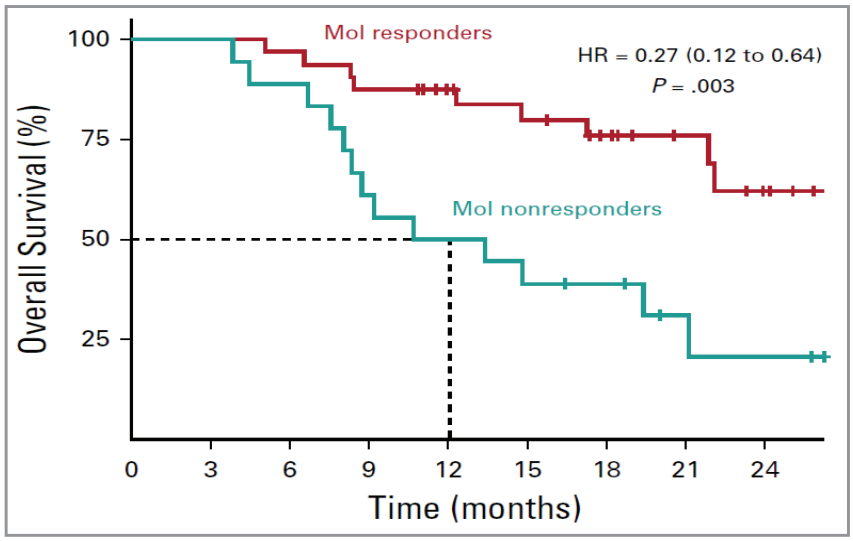
With the benefit of the patient's baseline molecular diagnosis, subsequent liquid biopsy testing will:

- Indicate the patient's response to treatment.
- Provide early indication of recurring or progressing cancer.

Monitor for Treatment Effectiveness



Molecular response assessment using cfDNA serves as a predictor of response to therapy.[4]

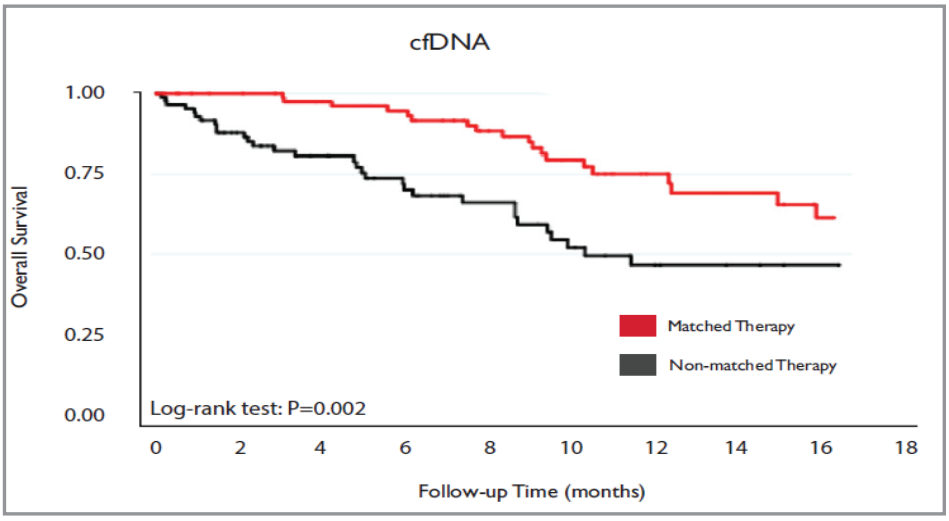
A decreasing number of cfDNA and cfRNA mutations 6-8 weeks into treatment or post surgery are predictive of sustained treatment response.

Conversely, an unchanged or increased number of cfDNA and cfRNA mutations can indicate a lack of treatment response and can guide an adaptive treatment approach.

Monitor for Recurrence

Overall survival rates significantly increased by matching the therapy to the tumor biology.[5]

Additionally, the cancer or the patient's response to treatment changed over the course of therapy and time. When there is a symptomatic or radiographic concern, liquid biopsy could aid in understanding the recurrence or progression of cancer, resulting in an adaptive treatment approach.



Sources:
[1]Leighl et al. 2019 Clin Cancer Res - DOI: 10.1158/1078-0432.CCR-19-0624
[2]Smyth et al. 2017 JAMA Oncol - DOI: 10.1001/jamaoncol.2016.6762
[3]Vu et al. 2020 JCO Precision Oncol - DOI: 10.1200/PO.19.00204
[4]Thompson et al. 2021 JCO Precision Oncol - DOI: 10.1200/PO.20.00321
[5]Valudi et al. 2021 Clin Cancer Res - DOI: 10.1158/1078-0432.CCR-20-3444

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