Is Liquid biopsy a good tool for Microsatellite Instability (MSI) assessment in solid tumors?


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BACKGROUND

• Within the last decade, immunotherapy revolutionised cancer treatment and patient’s (pts) prognosis.
• MSI is the only validated biomarker of response to immune checkpoint blockers (ICB). In daily practice, Immunohistochemistry (IHC) and Polymerase chain reaction (PCR) are the most recommended techniques for MSI detection.
• Lately, Next-generation sequencing (NGS) tissue/liquid biopsy emerged as a new tool for MSI detection and could be an alternative to IHC/PCR analysis.
• We aim to describe the characteristics of a cohort of pts with MSI solid tumors detected by liquid biopsy and to evaluate the concordance between IHC and NGS testing.

PATIENTS AND METHODS

• A total of 4390 patients underwent liquid biopsies.
• Data was collected from medical records and molecular profile reports (Foundation One Liquid CDx Assay – 324 genes) performed within the STING trial (NCT04393252) from June 2021 to April 2023.
• Patients with non-contributory liquid biopsies were excluded from the analysis.
• All patients were discussed in our Molecular Tumor Board and pts with targetable alterations were evaluated for inclusion in a clinical trial.

RESULTS

Characteristics N % Tumors MSI concordant MSI concordant N % Tumors Age, range 54-110 58 (84) MSI concordant 32 (55) N°=4390 N°=2575 58 (84) MSI concordant 30 (55) Gender Male 38 (54) 12(50) 24(50) Female 16 (46) 12(50) 8(20) Tumor site Genitourinary 30 (64) 22(73) 8(28) Gynecology 16 (32) 12(50) 4(25) Thorax 16 (32) 12(50) 4(25) Endocrine 10 (20) 10(100) 0 (0) Other 20 (40) 12(60) 8(40) Immunotherapy 45 (54) 20 (44) 25 (56)

• Only 1 of the total population had an MSI-H status according to liquid biopsy.
• A proportion of 40% (n=28) of patients had MSI-H status assessed by IHC and 55% (n=39) by NGS, with a concordance of 41%.

CONCLUSION

MSI concordance between immunohistochemistry and next-generation sequencing panels was considerably lower than reported in the literature. However, progression-free survival in patients treated with immunotherapy was better for those harbouring concordant MSI results in both IHC and NGS panels than those with either IHC-MSI or NGS-MSI alone. Larger prospective studies are needed in order to confirm the best method for MSI evaluation in daily practice.