Liquid biopsy: will it be the 'magic tool' for monitoring response of solid tumors to anticancer therapies?

Gingras I¹, Salgado R, Ignatiadis M.

Abstract

PURPOSE OF REVIEW: The aim of this review is to highlight the recent advances (in the past 12 months) concerning circulating tumor cells (CTCs) and circulating tumor DNA (ctDNA) in oncology.

RECENT FINDINGS: The value of CTCs as a prognostic biomarker is now well validated in breast, colon, and prostate cancer, but no trial has yet demonstrated that modifying treatment according to CTCs is superior to standard of care. Ongoing trials are addressing the clinical utility of CTCs. Moreover, there is emerging evidence about the potential of CTCs as a tumor tissue source to analyze protein and RNA expression, DNA mutations and drug sensitivity. ctDNA is a specific biomarker associated with tumor burden, and small studies have shown an association with worse outcome; prospective clinical studies on the prognostic and predictive value of ctDNA are needed. ctDNA can be used for tumor molecular profiling, with the potential advantage to encompass the spectrum of mutations present in the tumor.

SUMMARY: CTCs and ctDNA are promising new biomarkers in oncology, with potential clinical applications for monitoring and for comprehensive molecular profiling of cancer. For each assay, demonstration of analytical and clinical validity, as well as clinical utility in prospective clinical trials is needed before implementation in clinical practice.

PMID: 26335664 [PubMed - in process]