

Liquid Biopsy: Novel Concept Biomarker: Latest Weapon in Oncology...!!!!



A liquid biopsy (also known as exosome signature) can be defined as a liquid biomarker that can be easily isolated from any body fluids (blood, urine, saliva ascites, pleural effusion etc.) and represents the tissue from which it originated just like tissue biopsy. Circulating tumor cells (CTC) or nucleic acid analysis shed into the circulation from primary tumor provide a unique source of carcinoma cells. They were first described by Thomas Ashworth (Australian Physician) in 1869 and can be used as a non-invasive liquid biopsy. Molecular profiling of CTC is also helpful in the continuous follow-up of carcinoma patients by monitoring serial changes on a single cell level (liquid biopsy) when the primary tumor is already excised completely.

Advantages

- Identification of residual micro-metastatic cancer
- Non-invasive test, less painful and can be performed regularly
- Molecular tumor genotype (qualitative) and exciting tumor burden (quantitative)
- Easily check post-surgery to determine any residual micro-metastatic disease.

Until date, tumor tissue obtained from specimens by surgical or biopsy techniques have been the only source of the tumor DNA, which is required for the molecular and genomic assessment of cancer. However, such samples have various limitations: Because it is obtained by invasive procedures that can have complications, it cannot be frequently repeated.^[1]

A lot of innovative technologies to improve methods for CTC detection have recently been introduced, including CTC microchips, filtration devices, quantitative reverse-transcription polymerase chain reaction assays, and automated microscopy systems.^[2]

CTC analysis are regarded as real time liquid biopsy in patients suffering from cancer.

Thus, this multiplex “liquid biopsy” approach has not only a role to play in the diagnosis, but also plays a potential role in monitoring and management of decisions in cancer and other progressive diseases. Being a faster, less expensive and non-invasive technique, it is proving itself to be a game changer.

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