Progress in Monitoring Cancer With Blood Biopsies

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This month, Damon Runyon scientists published promising findings on “liquid biopsies.” This non-invasive method isolates and studies circulating tumor DNA (ctDNA)—free-floating pieces of DNA found in blood plasma that are shed from tumor cells. These studies demonstrated that liquid biopsies are becoming an important tool for monitoring cancer progression, as well as identifying treatment strategies and drug resistance earlier than traditional approaches.

A cross-disciplinary group from leading research centers in Boston recently reported on a new approach to capture ctDNA and perform broad genetic sequencing. Matthew L. Meyerson, MD, PhD (Damon Runyon Fellow ’95–’98), of the Dana-Farber Cancer Institute, is a pioneer in cancer genomics and was one of the leaders of this study, which established the feasibility and accuracy of profiling ctDNA from patients with advanced metastatic cancer. The researchers developed an efficient method for capturing and quantifying tumor DNA from blood prior to sequencing, thereby making blood biopsies cost-effective and scalable. The study demonstrates that nearly 90 percent of the genetic features of a tumor can be detected in blood by sequencing all the protein encoding genes. Eliezer M. Van Allen, MD (Damon Runyon Clinical Investigator ’15–’18), also contributed to this study, published in Nature Communications.

Separately, Christine M. Lovly, MD, PhD (Damon Runyon Clinical Investigator ’13–’18), of Vanderbilt University Medical Center, Nashville, and colleagues, have found a method of monitoring the progression of small-cell lung cancer (SCLC) by using liquid biopsies. They were able to identify specific gene mutations associated with relapse of SCLC before the cancer growth could be discovered through standard imaging. This study was published in The Journal of Thoracic Oncology.

Read more about this research here: https://www.biosciencetechnology.com/news/2017/11/new-techniques-give-blood-biopsies-greater-promise.

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