DOI: https://doi.org/10.36811/ijho.2021.110020 **IJHO: October-2021: Page No: 458-500**

Instant Journal of Hematology and Oncology

Review Article **Open Access**

Tumor Circulome in the Liquid Biopsies for Cancer Diagnosis and Prognosis

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Received Date: *Sep 29, 2021 /* ***Accepted Date:*** *Oct 11, 2021 /* ***Published Date:*** *Oct 13, 2021*

Abstract

New research shows that blood and urine tests can lead to faster and less invasive methods for diagnosing and monitoring different types of tumors. Two studies by the California South University (CSU) Cancer Research Institute (CRI) describe the potential of fluid biopsy to identify and track tumor growth in two very different cancers: bladder cancer and peripheral nerve tumors. Despite the differences between these cancers and their related biopsies, studies show the potential benefits of this relatively new tool in the fight against cancer.

Keywords: Cancer; Cells; Tissues; Tumors; Prevention; Prognosis; Diagnosis; Imaging; Screening; Treatment; Management

Cite this article as: Alireza Heidari, Elena Locci, Silvia Raymond, et al. 2021. Tumor Circulome in the Liquid Biopsies for Cancer Diagnosis and Prognosis. Int J Hematol Oncol. 4: 458-500.

Introduction

One study reports the development of a urinary biopsy to monitor bladder cancer. By easily collecting urine samples, doctors can determine if the initial treatment has eliminated the cancer or left the remnants of the disease behind. This knowledge can lead to fewer patients undergoing unnecessary surgery. The second study describes a blood biopsy to detect a tumor of the sheath or inner lining that covers the peripheral nerves. This rare cancer is caused by an inherited genetic disorder called neurofibromatosis type 1 (NF1). In patients with NF1, it is difficult to determine whether benign or malignant tumors have formed in the nerve sheath. Our studies show ways to improve cancer management with fluid biopsies that demonstrate accurate diagnosis and monitoring of tumors at different stages of the disease. In the case of bladder cancer, if a urine biopsy detects whether the initial chemotherapy has completely destroyed the tumor, it can help

DOI: https://doi.org/10.36811/ijho.2021.110020 IJHO: October-2021: Page No: 458-500

some patients avoid major surgery to remove the bladder, and for NF1, if we can between cancerous tumors. And to differentiate pre-cancerous, we pave the way for early detection of cancer in inherited conditions that predispose people to cancer [1-490].

Results and Discussion

Patients with bladder cancer who have invaded the underlying muscle usually undergo chemotherapy to shrink the tumor, followed by surgery to remove the bladder. Bladder resection, which can include prostate and seminal vesicle removal for men and removal of the uterus, ovaries, and part of the vagina for women, reduces the risk of cancer recurrence. But some patients may respond well to initial chemotherapy and do not need to have their bladder or adjacent organs removed. Unfortunately, today there is no way to diagnose which patients may not need bladder resection, a method that has a major impact on quality of life. Urine biopsy performed by Alireza Heidari *et al.* [1–490]. May in the future be a way to determine which patients may safely avoid bladder resection. In this study, researchers analyzed DNA in the urine of healthy people and patients with bladder cancer undergoing chemotherapy. After chemotherapy, but before surgery to remove the bladder, the scientists were able to identify the remaining DNA in the urine of cancer patients that would not otherwise be detected. All patients underwent surgery to remove the bladder. The researchers found tumor DNA in the urine of patients whose bladders later showed remnants of the tumor, even after chemotherapy. In contrast to those patients who responded well to so-called chemotherapy, there was no evidence that tumors remained in the bladder after surgical removal; they also did not show any tumor DNA in their urine before surgery. While the test is not yet sensitive enough to guide treatment decisions, Chadori said the study paves the way for further improvements to identify patients who can maintain their bladder after chemotherapy. Patients with NF1 are prone to cancer, and peripheral nerve sheath tumors are the most common cause of death for such patients. These cancers usually originate from benign tumors, and it is often difficult to distinguish between benign and malignant types of these tumors. In the future, fluid biopsy may help physicians determine when malignant tumors are malignant in patients with NF1, and improve early cancer diagnosis and early treatment in patients at high risk for cancer.

Conclusion

There are signs of gastritis or inflammation of the bladder that may also indicate bladder cancer. If additional signs and symptoms such as weight loss, vomiting and pain appear not only in the abdomen and defecation, you need to take the necessary measures, including gastroscopy. An MRI should also be done when vomiting. Chronic inflammation, especially gastritis, can lead to cancer; therefore, all persons 35 years of age and older are required to undergo gastroscopy once a year.

Acknowledgment

This study was supported by the Cancer Research Institute (CRI) Project of Scientific Instrument and Equipment Development, the National Natural Science Foundation of the United Sates, the International Joint BioSpectroscopy Core Research Laboratory Program supported by the California South University (CSU), and the Key project supported by the American International Standards Institute (AISI), Irvine, California, USA.

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DOI: https://doi.org/10.36811/ijho.2021.110020 IJHO: October-2021: Page No: 458-500

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