Nanopore Testing: A Paradigm Shift in Ovarian Cancer Screening

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ARTICLE INFO

Ovarian cancer is a fifth leading cause of cancer related mortality among women. According to the American Cancer Society, about 19,680 cases with ovarian cancer will be diagnosed in US women in 2024 and almost 12,740 women will lose their lives to ovarian cancer [1]. The currently used treatments involve chemotherapy and radiation with non-targeted therapies, drug resistance and undesirable side effects. These drawbacks have captivated the attention of scientists to discover some alternative strategies including Nanotechnology which is more convenient and target specific [2].

No screening tests are available for ovarian cancer. Ovarian cancer is known as a "silent killer" and it usually remains undiagnosed until it reaches to an advanced stage. Scientists are working to explore non- invasive urine based test to make early detection possible.This urine based test along with family history, transvaginal ultrasound, and CA-125 blood tests will provide early-stage identification, diagnosis, and therapy for ovarian cancer, according to the researchers.

Patients with ovarian cancer have certain type of peptides in urine that are analysed by nanotechnology. A new approach "Nanopore sensing" in which nanopores that measures any change in electric current of molecules passing through it and these changes will show the properties of proteins. This technique helps in identifying the peptides related to ovarian cancerFurther studies are required to identify peptides linked to ovarian cancer, but the techniques are not very cost effective and simple. Thirteen peptides were found and examined by the researchers, including ones that came from leucine-rich a-2 glycoprotein, a recognised biomarker found in the urine of ovarian cancer patients.

Since the test is still in its early stages, more clinical trials will be needed to validate it and determine its efficacy in practical settings. The investigation of nanotechnology in medical diagnostics promises to usher in a new era of innovation by revolutionising not just the detection of ovarian cancer but also the entire field of disease diagnosis and treatment. Numerous people have hope as this approach includes the possibility of early ovarian cancer detection via a straightforward urine test. It emphasises to explore the scientific advancement with the aim of combating the deadliest cancer affecting women.

REFERENCES

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