Study reveals novel immune-based biomarker helps detect ovarian cancer years before conventional diagnosis

June 14 2024, by Kaila Revello

Researchers at Children's Hospital of Philadelphia (CHOP) announced the discovery of a novel immune-based biomarker that could pave the way for potential lifesaving early detection of high-grade ovarian cancer (HGOC). The findings were published today in the journal *Cell Reports Medicine*.

High-grade ovarian cancer (HGOC) is the fifth-leading cause of cancer-related death among women. More than 90% of women are diagnosed when the disease has reached advanced stages and has already spread, presenting significant treatment challenges.

Ovarian cancer is highly treatable when caught early, but tests that look for conventional biomarkers haven't been able to detect microscopic, metastatic early lesions that often develop in the fallopian tubes. However, with the discovery of a novel immune-based biomarker, there is potential to change the trajectory for many women.

"Early detection of ovarian cancer could mean the difference between life and death for millions of women," said Li, Ph.D., a core faculty member in the Center for Computational and Genomic Medicine at Children's Hospital of Philadelphia.

"We believe our findings can be a gamechanger, providing insights for the development of an immune-based biomarker to detect early-stage

ovarian cancers, as well as helping to potentially advance pediatric cancer research."

In this study, researchers at CHOP and UT Southwestern Medical Center in Dallas analyzed T-cell receptors (TCRs) in nearly 500 blood samples from pre-diagnostic patients with ovarian cancer, as well as healthy/benign controls from the Nurses' Health Study. TCRs are proteins found on T cells, a type of immune cell that recognizes and binds to foreign substances.

Study analysis revealed that in the early stages of HGOC, approximately two to four years before most cases of HGOC are currently diagnosed, a healthier immune system reacts significantly stronger, producing a measurable biomarker. Therefore, researchers deduced that tracking the disease within that specific timeframe, before a shift in the body's immune response, allowed for earlier treatment interventions.

The researchers also noted that additional research is needed to aid in the development of a diagnostic test sensitive enough to detect the novel immune biomarker. They envision the testing as a complement to current approved HGOC screening protocols.

More information: Xuexin Yu et al, Quantifiable TCR repertoire changes in prediagnostic blood specimens among patients with high-grade ovarian cancer, *Cell Reports Medicine* (2024). DOI: 10.1016/j.xcrm.2024.101612

Provided by Children's Hospital of Philadelphia

Citation: Study reveals novel immune-based biomarker helps detect ovarian cancer years before conventional diagnosis (2024, June 14) retrieved 8 August 2024 from

https://medicalxpress.com/news/2024-06-reveals-immune-based-biomarker-ovarian.html

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.