

Ultrasound plus proteomic blood analyses may help physicians diagnose early-stage ovarian cancer

January 21 2010

Noninvasive contrast-enhanced ultrasound imaging, combined with proteomic analyses of blood samples may help physicians identify early-stage ovarian cancer and save the lives of many women, according to an article published in the February issue of the *American Journal of Roentgenology*. Proteomics is the study of proteins, particularly their structure and function.

Ovarian cancer is the fifth leading cause of cancer-related death. More than 21,500 women annually are diagnosed with the disease. Each year, nearly 15,000 women die from [ovarian cancer](#). More than two-thirds of these patients (67 percent) are diagnosed at an advanced-stage. If early-stage ovarian cancer is detected, survival is greater than 90 percent (compared to 30 percent for advanced-stage disease).

"The fact that so many women are not diagnosed until their disease is advanced confirms the inadequacy of pelvic examinations and standard [ultrasound](#) in detecting early-stage ovarian cancer and the dire need for a validated screening method for the detection of early-stage disease," said David A. Fishman, MD, lead author of the article. "The ability to detect ovarian cancer by a simple blood test has long been the holy grail of screening tests. Although a single [biomarker](#) blood test would be ideal and simple, it is not possible at present," said Fishman.

The study of proteomics and new analytical techniques using [mass](#)

[spectrometry](#) has led to the discovery of hundreds of unique proteins that may serve as biomarkers and aid in the detection of early-stage cancer. "This new discovery sheds light on the possibility that highly discriminatory proteins may be used for the detection of ovarian cancer. However it is necessary to verify any information found by proteomic analysis with an imaging technique," said Fishman.

Researchers at Mount Sinai School of Medicine and Vanderbilt University Medical Center have discovered that an inexpensive, noninvasive medical imaging technique called contrast-enhanced ultrasound may play a complementary role to confirming or refuting newly discovered biomarkers' ability to accurately detect early-stage ovarian cancer. "We also found that the contrast agents may significantly improve the diagnostic ability of ultrasound to identify early microvascular changes that are known to be associated with early-stage ovarian cancer," said Arthur C. Fleischer, MD, co-author of the article.

"Separately, proteomics and ultrasound are of limited value as early-detection tools," said Fleischer. "However in combination, we will likely be able to shift from an era of diagnosing advanced stage ovarian cancer to that of early-stage disease and, most important, save the lives of many women," he said.

Provided by American College of Radiology

Citation: Ultrasound plus proteomic blood analyses may help physicians diagnose early-stage ovarian cancer (2010, January 21) retrieved 26 April 2024 from <https://medicalxpress.com/news/2010-01-ultrasound-proteomic-blood-analyses-physicians.html>

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