

## New Biomarker Panel Promising

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hemoglobin protein, apolipoprotein A-I (apo A-I), transferrin, and CA 125.

The discovery that apo A-I is downregulated in the early stages of ovarian cancer offers the distinct possibility that it could also be a target for therapy. "We found this most exciting," Dr. Farias-Eisner said.

Moreover, Western blot analysis showed that the magnitude of protein changes correlated with the severity of disease, with more expression seen in high-volume disease.

"We never expected this to be the case. We thought it would be an all-or-nothing phenomenon," he said.

Dr. Farias-Eisner explained that promising biomarker panels may track upregulation or downregulation of individual proteins.

"We don't care in this business of discovery of new markers which direction the change occurs," he said.

It is the collective combination of markers that is proving to be key in distinguishing ovarian neoplasms from other types of cancers or inflammatory conditions, and then narrowing the focus even further by distinguishing benign from malignant ovarian neoplasms.

Different forms of cancer and nonmalignant tumors do appear to leave fingerprints in the serum as various proteins respond to neoplasms.

The complex patterns offer the

promise of far greater accuracy in diagnosis than any existing biomarker provides today.

Dr. Farias-Eisner and his associates are now working with UCLA bioengineers to refine a handheld device to identify the telltale pattern of proteins from a finger stick's worth of blood.

The patient's blood is drawn into a pipette containing antibodies to the target proteins.

A sensor in the device's disposable tip then converts the immunologic pattern of biomarkers into an electrical signal, producing a readout for the physician.

"This could prove to be an easy, fast, inexpensive device that could be used at point of care," he said.

The same technology is being developed for bioterrorism investigations to quickly identify suspicious materials such as anthrax, said Dr. Farias-Eisner.

Both the device and the biomarker panel have been patented, and the UCLA team is working with the Food and Drug Administration to launch larger clinical trials.

If all goes as planned, the device could be in clinician's offices in 18 months to 3 years.

If it is successful, the technology could be put into widespread use to diagnose ovarian cancer, to track responses to therapy, and to identify recurrences, Dr. Farias-Eisner said. ■

## Do Older Women Trust Mammography Too Well?

BY KATE JOHNSON  
Montreal Bureau

ORLANDO — Older women with a family history of breast cancer place extraordinary faith in mammography over clinical breast exam for reassurance about their breast health, according to Karen Greco, R.N., Ph.D., lead investigator of a small, qualitative study on mammography decision making in this population.

Furthermore, many of these women may not appreciate their potentially increased risk for hereditary cancer syndromes, added Dr. Greco, who presented her study as a poster at the annual meeting of the Gerontological Society of America.

"The women in my study were not aware that if they had a first-degree relative with breast cancer and another one with ovarian cancer, that there was a connection," she said in an interview. "Although some had been asked about family history they didn't understand what it meant, and they didn't understand the significance."

Ten of the 16 women in her study had family histories that suggested they could be at risk for a hereditary cancer syndrome, yet they reported they had not received a cancer risk assessment, said Dr. Greco of the Oregon Health & Science University School of Nursing in West Linn.

The study included 16 women over age 65 years (average age 73) who were at increased risk for breast cancer because of both family history—defined as at least one first-degree relative diagnosed with breast cancer—and advancing age.

Open-ended, semistructured interviews were conducted with the women to explore their decisions about screening mammography.

Although 15 of the 16 women had regular visits with their health care provider, and 14 had regular mammograms, less than half (7) said they received regular clinical breast exams, Dr. Greco said.

**'There was extraordinary confidence ... to the point that if women heard negative information about the effectiveness of mammograms, they ignored it.'**

"Many said they believed very strongly that mammography is more effective than clinical breast exam or self-[administered] breast exam because 'mammograms can see inside me,'" she said.

"There was extraordinary confidence in mammography to the point that if women heard negative information about the effectiveness of mammograms, they ignored it," Dr. Greco added.

In addition, many women entertained the mistaken belief that their risk for breast cancer decreased with age, she said.

"We may need to look more at what older women's beliefs are about cancer risk and age because they don't all believe that increased age increases their risk," she said.

The study highlights the emotional consequences of mammography in high-risk women, Dr. Greco noted.

Women described their worry if they were asked to return because of an abnormal finding, and they described decreased worry if they were given their results immediately.

"It may be helpful for physicians to know that for high-risk women, having mammograms is an emotional experience, and we may need to look at providing them with some emotional support," she said. ■

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## Integrated PET-CT Best for Detecting Recurrent Ovarian Ca

BY PATRICE WENDLING  
Chicago Bureau

CHICAGO — The accuracy of PET-CT for detecting recurrent ovarian cancer is high, Dr. Sunit Sebastian said at the annual meeting of the Radiological Society of North America.

The diagnosis of early recurrence is challenging due to the small size of peritoneal metastases, he said.

In a retrospective study, integrated PET-CT imaging proved to be more accurate than CT alone or PET alone for detecting ovarian cancer recurrence either above or below the diaphragm, reported Dr. Sebastian, who was at Massachusetts General Hospital in Boston at the time of the study.

The analysis included 54 consecutive

CT, PET, and PET-CT examinations that were performed at the hospital on 53 women for tumor recurrence after primary debulking surgery for histologically proven ovarian cancer.

One patient underwent PET-CT examination twice.

PET-CT scans of the neck, chest, abdomen, and pelvis were performed with negative oral contrast on a fusion PET-CT scanner.

Delayed PET images were obtained 1 hour later. Finally, a diagnostic CT scan was performed with intravenous contrast and negative oral contrast.

A nuclear medicine radiologist and an abdominal radiologist independently reviewed the diagnostic CT and PET scans, and then reviewed the PET-CT fusion study together.

A gynecologic oncologist provided the standard for recurrent disease based on a clinical record review that took place 3 months after the scans.

The gynecologic oncologist and the readers were blinded to each others' reports, Dr. Sebastian said.

Sensitivity, specificity, and accuracy were each calculated with 95% confidence intervals.

For the entire body, the sensitivity for CT was 35/38 (92%), 31/38 (82%) for PET, and 37/38 (97%) for PET-CT.

Specificity for CT was 9/15 (60%), 10/15 (67%) for PET, and 12/15 (80%) for PET-CT.

Accuracy for CT was 44/53 (83%), 41/53 (77%) for PET, and 49/53 (92%) for PET-CT, said Dr. Sebastian, now a senior research associate in the division of radi-

ology, Emory University School of Medicine, Atlanta.

For the neck and chest, the accuracy was 47/53 (89%) for CT, 48/53 (91%) for PET, and 51/53 (96%) for PET-CT. For the abdomen and pelvis, the accuracy was 42/53 (79%), 42/53 (79%) for PET, and 48/53 (91%) for PET-CT.

Dr. Sebastian suggested that women with ovarian cancer should be routinely evaluated with PET-CT 4-6 months after surgery.

Ideally, a CT scan of the chest should be included as part of the work-up because about 5% of patients with recurrent ovarian cancer will have metastatic disease in the chest without identifiable recurrence in the abdomen and pelvis. For economic reasons, a chest x-ray at least would be helpful, he said. ■