Triple-negative breast cancers may have unique therapeutic target

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Patients with triple-negative breast cancer, one of the hardest subtypes to treat, may have a unique biomarker that would enable them to receive more targeted therapy, according to data presented at the Fourth AACR International Conference on Molecular Diagnostics in Cancer Therapeutic Development.

Triple-negative breast cancers are breast cancers that have tested negative for estrogen receptors, progesterone receptors and HER2. Because of this biology, these cancers do not respond to endocrine therapies or trastuzumab.

"In other subsets of breast cancer, you can use these drugs with some success. However, triple-negative breast cancers currently lack therapeutic targets and are managed with conventional chemotherapy," said Agnieszka K. Witkiewicz, M.D., an associate professor of pathology at Thomas Jefferson University Hospital in Philadelphia.

Witkiewicz examined 97 patients with triple-negative breast cancer, of whom 73 were white and 24 were African-American. Insulin-like growth factor 1 receptor (IGF-1R) protein expression was evaluated by immunohistochemistry and IGF-1R gene copy number was assessed by chromogenic in situ hybridization.

They found that IGF-1R was overexpressed in 25 percent of the cases. The IGF-1R protein overexpression correlated with gene amplification.

Moreover, low expression of the receptor was associated with greater risk of lymph node metastasis and high expression showed borderline association with lower tumor size. Among patients younger than 55 years, IGF-1R overexpression was associated with longer survival.

Since IGF-1R blockade has been a successful therapeutic approach in sarcomas, Witkiewicz suggested that there may be potential to target this receptor in this breast cancer subtype as well.

"For now, we know that it is there and we know it is a marker of better prognosis," said Witkiewicz. "The next step is to learn if triple-negative breast cancer patients benefit from targeting IGF-1R."

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