Protein predicts development of invasive breast cancer in women with DCIS

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Women with ductal carcinoma in situ (DCIS) who exhibit an overexpression of the protein HER2/neu have a six-fold increase in risk of invasive breast cancer, according to a new study from the University of Pennsylvania School of Medicine. The results, published in the May issue of the journal *Cancer Epidemiology, Biomarkers and Prevention,* may help clinicians distinguish between DCIS that requires minimal treatment and DCIS that should be treated more aggressively.

"Not all DCIS is the same," says Brian Czerniecki, MD, PhD, Co-Director of the Rena Rowan Breast Center at the University of Pennsylvania and Surgical Director of the Immunotherapy Program for the Abramson Cancer Center. "From a practical standpoint, if you know that a patient has a greater chance of invasive cancer when you're doing a lumpectomy or mastectomy, then you might want to do a sentinel node biopsy, because there is a greater chance the cancer has spread to the lymph nodes."

DCIS accounts for more than 20 percent of all breast cancer diagnoses in the United States. While many of these premalignant lesions will progress to invasive disease, clinicians currently cannot predict which women are at greatest risk.

To determine whether HER2/neu overexpression in DCIS is associated with an increased risk of invasive disease, Czerniecki's team examined DCIS samples from 106 women diagnosed with DCIS between 2003 and 2007. Thirty seven percent of patients had DCIS that overexpressed

HER2 and 21 percent of patients were found to have invasive disease after final pathology was completed. The likelihood that a woman with DCIS had invasive disease was 6.4-fold higher when her tumor overexpressed HER2 relative to women whose DCIS did not overexpress the protein, even after other known risk factors, such as DCIS size and grade, were taken into account.

Pathologists do not currently examine DCIS for HER2 expression because it does not impact treatment. However, given these new data, Czerniecki thinks it may be appropriate for clincians to change their approach in the future. The data also suggest that HER2/neu overexpression may be critical for the transition from in situ disease to invasive disease, Czerniecki says. "If HER2 is associated with invasion or plays a role in the development of invasive disease, then maybe targeting it early can keep people from moving from DCIS to invasive cancer."

He and his colleagues are already testing anti-HER2/neu vaccines, which may help a woman's immune system eliminate HER2-overexpressing tumor cells.

Source: University of Pennsylvania School of Medicine (news : web)