# Stress May Affect Aggressive Breast Ca Growth

BY ALICIA AULT

FROM THE AMERICAN ASSOCIATION FOR CANCER RESEARCH

WASHINGTON – Higher levels of stress may partially account for aggressive tumor growth in African American and Hispanic women with breast cancer, according to Garth H. Rauscher, Ph.D., of the University of Illinois at Chicago.

This is one of the first studies to look closely at the potential role of psychosocial stress on tumor progression in breast cancer, said Dr. Rauscher, an associate professor of epidemiology at the university's School of Public Health. However, he acknowledged that the study is "flawed" because it is cross-sectional and has other limitations.

"This is definitely an exploratory study," Dr. Rauscher said at the meeting.

It was already known, especially in Chicago, that there was a wide disparity in mortality rates between black women and white women, said Dr. Rauscher. The data are not as well defined for Hispanic women, he said.

Tumor aggressiveness likely contributes to higher mortality rates in the minorities. Both African Americans and Hispanics generally have higher-grade tumors and hormone receptor–negative tumors, said Dr. Rauscher. The researchers wanted to investigate why these women have the more aggressive tumor types.

They chose to examine psychosocial factors.

Dr. Rauscher and his colleagues examined associations between patient-reported stress and aggressive breast cancer in a cross-sectional study of 397 non-Hispanic whites, 411 non-Hispanic blacks, and 181 Hispanics. Data were collected through patient interviews and medical record extraction. Stress was assessed using the four-item Cohen Perceived Stress Subscale, the UCLA Loneliness Scale, and the Cockburn psychological consequences scale. The three scales were combined into a single, standardized stress score.

Patients were interviewed just after their diagnosis of breast cancer. Dr. Rauscher explained that the researchers assumed that if patients were experiencing high stress post diagnosis, they were likely to have been under stress before diagnosis as well. But he acknowledged that this assumption is a major limitation of the study.

Of 989 patients, the researchers were able to get tumor grades for 772: 149 had low-grade tumors; 308 were intermediate, and 315 were high-grade tumors. A total of 21% (66 of 315) of patients with high-grade tumors reported elevated stress, 19% (58 of 308) of patients with intermediate-grade tumors reported elevated stress, and 11% (16 of 149) of patients with low-grade tumors reported elevated stress.

The differences were statistically significant, until Dr. Rauscher and his colleagues adjusted for age, treatment, income, and other factors.

A total of 28% of women with hormone receptor–negative tumors reported stress, compared with 14% of those with receptor-positive growths. Patients with hormone receptor–negative disease reported stress one-third of a standard deviation higher than did patients with receptor-positive disease. The difference held up after adjustment, Dr. Rauscher said.

Overall, psychosocial stress scores were higher for black and Hispanic women than for whites.

There's still no way to know, however, what accounts for those differences, said Dr. Rauscher. "If you have a more aggressive diagnosis, does that make you worry more? You could certainly put that out there as a possibility," he said. Patients with more aggressive disease might also undergo more aggressive treatment, which could also lead to greater stress, he said. "There could be causal arrows going in both directions here, but we can't tease that out." Even so, he said, "our results are consistent with a role for stress in the etiology of aggressive breast cancer."

Dr. Rauscher suggested that other researchers could help confirm his work by delving further into existing cohort studies that measured stress and had banked tumor samples. By comparing tumor type to patients reporting stress, they might be able to tease out an association.

Dr. Rauscher reported no conflicts. ■

VIEW ON THE NEWS

# Which Came First – Stress or Disease?

University of Illinois at Chicago researchers who investigated a possible connection between stress and aggressive breast cancer tumor types offered a healthy reality check along with their results. They point out that their study's results may be flawed by the classic "chicken or egg" dilemma inherent in measuring stress levels following a diagnosis.

Did higher rates of stress instigate or propel tumor growth long term, setting the stage for aggressive disease in these women, or was their elevated stress a normal response to learning that they had an aggressive form of breast cancer, requiring more intensive treatment and a less optimistic prognosis?

The promise in this study is its approach, focusing on the possibility that psychosocial stress plays a role in the development of aggressive breast

cancer. It is certainly plausible, and fits with accumulating evidence that stress hormones are associated with prematurity and low birth weight (Int. J. Neurosci 2008; 118:1181), glucose intolerance (Psychoneuroendocrinology 2008;33:517-29. Epub 2008 Mar 11), and cardiovascular disease (J. Am. Coll. Cardiol. 2008;51:1237-46).

Longitudinal studies, ideally obtaining stress data in healthy subjects prior to diagnoses of cancer and other diseases, could offer illuminating insight in the contribution of psychosocial factors to disease development.

BETSY BATES FREED, PSY.D., *is a clinical psychologist in Santa Barbara, Calif., and a medical journalist. She has no relevant financial disclosures.*