

Strong association found between prevalence of low white blood count and women of African descent

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Researchers from Columbia University Mailman School of Public Health and the Herbert Irving Comprehensive Cancer Center at Columbia University Medical Center, have found a strong association between women of African descent from the U.S. and Caribbean, who are otherwise healthy, and the prevalence of neutropenia, or low white blood count. Neutropenia, which is associated with race and ethnicity, has essentially been unexplained and, although thought to be benign, may affect therapy for cancer or other illnesses. Among women of African descent who develop a malignancy, this association may contribute to racial disparities in treatment and outcomes. The study findings are reported online in Blackwell Publishing Ltd. *British Journal of Hematology* (August 2008).

"The goal of our study was to learn as much as we could about the association between a single nucleotide polymorphism (SNP), which creates a person's unique DNA sequence, and low white blood cell counts (WBC)," said Victor, R. Grann, MD, professor of Epidemiology and Health Policy and Management at Columbia University Mailman School of Public Health, professor of Medicine at the Columbia University College of Physicians & Surgeons, director of Research Recruitment and Minority Outreach of the Herbert Irving Comprehensive Cancer Center (HICCC) , and study lead author.

In an earlier study the Columbia researchers found that low WBC may

delay or prevent the completion of appropriate chemotherapy, especially among women receiving adjuvant treatment or treatment after surgery for breast and colon cancer, and could affect cancer survival.

"We found that women of African descent with early-stage breast cancer had lower baseline WBC and longer duration of adjuvant chemotherapy than non-Hispanic white women," said Dawn Hershman, M.D., Florence Irving Assistant Professor of Medicine and Epidemiology, Columbia University Medical Center, co-director of the Breast Cancer program of the HICCC, and senior author of the study. "Black women were more likely to miss cycles of chemotherapy and had poorer survival than white women which could be related to lower WBC among other factors. These observations raised questions about whether the prevalence of low WBC varied among ethnic subgroups and how WBC might be related to other biomarkers among women without cancer."

This led to other research conducted by the Mailman School scientists and published in *Cancer* (August 15, 2008) and the present article published online in the *British Journal of Hematology*, which found that a certain genotype, common among women of African descent, is closely associated with low absolute neutrophil counts or low polymorphonuclear cells, the one's that fight infection, which may affect the timing and intensity of cancer treatments.

The authors anticipate that additional research underway could shed light on the timing and duration of appropriate chemotherapy treatment and its affect on survival. A better understanding of these associations may help to improve cancer outcomes among individuals of African and Caribbean ancestry.

"Unfortunately, we still know very little about the association of neutropenia with genotype in the setting of cancer or any other disease, including sickle cell anemia," noted Dr. Grann. "Further research may

help to account for and prevent poor outcomes among persons of African ancestry and lead to interventions that may benefit them as well as all patients."

Source: Columbia University's Mailman School of Public Health

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