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Low prevalence of HPV infection may be tied to poor prognosis for blacks with head and neck cancer

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Researchers at the University of Maryland Marlene and Stewart Greenebaum Cancer have found that head and neck cancer patients who test positive for the human papillomavirus (HPV) have much better survival rates than patients who don't have the virus, according to a new study in the journal *Cancer Prevention Research.* The researchers also discovered that blacks in the study had a very low rate of HPV infection, and consequently worse survival, which may explain why African-American patients traditionally have had a poor prognosis for head and neck cancer.

"For the first time, we have evidence that the major difference in survival between black and white patients with head and neck cancer appears to be the rate of HPV infection. We found an astounding difference in prognosis between patients who are HPV-positive and those who are HPV-negative," says the study's senior author, Kevin J. Cullen, M.D., director of the University of Maryland Marlene and Stewart Greenebaum Cancer Center and professor of medicine at the University of Maryland School of Medicine.

Scott Lippman, M.D., chairman of the Department of Clinical Cancer Prevention at the University of Texas M.D. Anderson Cancer Center, called the study, "practice-changing."

"Squamous cell carcinoma of the head and neck is one of the fastest

growing cancers, and this study gives us a new way to assess prognosis for our patients," says Dr. Lippman, who is editor-in-chief of Cancer Prevention Research, which is published by the American Association for Cancer Research.

Dr. Cullen adds, "We need to analyze HPV routinely in specific patients with head and neck cancer, which we're currently not doing. HPV-positive cancer is biologically a very different disease than HPV-negative cancer, and we need to take that into account as we're planning future therapies. Those with HPV-negative disease may not be as well served with our current treatments combining chemotherapy and radiation."

The human papillomavirus is known to cause certain types of cancer and is a major risk factor for head and neck cancer, so researchers were surprised to find that patients with HPV infection had a better prognosis.

Only 4 percent of black patients with squamous cell carcinoma in the study were HPV-positive, compared with 34 percent of white patients. The median overall survival was more than three-fold higher for whites (70.6 months) than for blacks (20.9 months) who were treated with chemotherapy and radiation. Dr. Cullen says the survival rate at five years for HPV-positive patients was about 85 percent, compared to 35 percent for HPV-negative patients. Survival was similar for HPV-negative patients, regardless of race. The study's findings confirm that HPV infection relates specifically to a type of head and neck cancer -- cancer of the oropharynx, which include the tonsils, soft palate and base of the tongue.

Dr. Cullen says, "There is currently no consensus on why blacks fare worse with squamous cell carcinoma of the head and neck than whites, but our findings provide the first clue that a critical reason may be biologic rather than related to issues of access to care, lack of insurance

or attitudes of health care providers."

"Many researchers at the University of Maryland School of Medicine are conducting important studies relating to racial disparities in diagnosis and treatment. This groundbreaking study will have a significant impact on how doctors care for patients with head and neck cancer," says E. Albert Reece, M.D., Ph.D., M.B.A., vice president for medical affairs at the University of Maryland and dean of the University of Maryland School of Medicine.

Cancer experts believe that head and neck cancer, particularly oropharyngeal cancer, is on the rise because of an increase in HPV infection in the oral cavity. Overall, about 25 percent of head and neck cancers are tied to HPV infection, Dr. Cullen says. In comparison, HPV causes virtually 100 percent of cervical cancers, and a vaccine has been developed to help prevent this type of cancer by preventing HPV infection.

Researchers don't yet understand why blacks have a lower rate of HPV infection in head and neck cancers than whites, Dr. Cullen says. There is some evidence that HPV transmission associated with oral cancer may be related to sexual practices, but he says there are probably a number of other factors involved, including possible differences in immunity and how the virus can become integrated into the cell's DNA "that now we just don't understand."

In the study, researchers analyzed data from about 200 patients who had been treated at the Greenebaum Cancer Center and then evaluated another group of 230 patients treated as part of a multi-center clinical trial.

The study was funded in part by the Maryland Cigarette Restitution Fund Program, which uses money from a legal settlement with big

tobacco companies for cancer research and cancer screening, education and prevention programs in Maryland. "This is really a wonderful example of how CRF-supported research can benefit Marylanders and all people who are battling cancer," Dr. Cullen says. "We are very committed to helping the Cigarette Restitution Fund fulfill its mission of erasing racial disparities in diagnosis and care."

Source: University of Maryland Medical Center

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