

Genetics, lifestyle provide clues to racial differences in head and neck cancer

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Why are African Americans more likely than Caucasians to be not only diagnosed with head and neck cancer, but also die from the disease?

While the answer isn't a simple one, differences in [lifestyle](#), access to care and tumor genetics may, in part, be to blame, according to a new study from Henry Ford Hospital.

The study also finds that [African Americans](#) are more likely to be past or current [smokers](#), one of the primary [risk factors](#) for head and neck cancer.

"We're really trying to understand why African Americans with head and neck [squamous cell carcinoma](#) do so poorly," says study lead author Maria J. Worsham, Ph.D., director of research in the Department of Otolaryngology-Head & Neck Surgery at Henry Ford.

"Using a comprehensive set of risk factors that are known to have some bearing on the disease, we're able to gain a better understanding of what contributes to racial differences and work to help improve patient care."

Results from the study will be presented Wednesday, Sept. 14 in San Francisco at the American Academy of Otolaryngology–Head & Neck Surgery Foundation Annual Meeting. The study was funded by a NIH grant.

This year alone, it's estimated that 52,140 news cases of head and neck

cancer will be diagnosed, and roughly 11,460 will die in 2011 from oral cavity, and pharyngeal and laryngeal cancers.

African Americans are more likely to be diagnosed with late-stage head and neck squamous cell [carcinoma](#) (HNSCC) and have a worse five-year survival than Caucasians. It's unknown whether significant biological rather than socioeconomic differences account for some of the disparities in outcomes.

To get at the root of these differences, Dr. Worsham and her research team used a large Detroit multi-ethnic group of 673 patients with HNSCC. Most notably, 42 percent of the study group is African American.

The researchers also took a very broad approach to the study, by examining many of the intertwined variables influencing health and disease to look for differences among African Americans and Caucasians.

In all, the study focused on 136 risk factors, including demographics (age, race, gender), smoking and alcohol use, access to care and type of cancer treatment (radiation and/or surgery). Tumor characteristics, including stage, biology and genetics, also were examined.

Much of the disparities seen among African Americans with head and [neck cancer](#) can be traced to access to care barriers, including insurance, that prevent them from getting timely and high-quality medical care, often resulting in late stage diagnosis.

Henry Ford researchers found that:

- While 88% of African Americans in the study had medical insurance, the majority had Medicare or Medicaid instead of private health

insurance.

- African Americans also were more likely to be unmarried or living alone, both of which previous studies suggest have a negative impact on quality of life and survival.
- In terms of cancer treatment, African Americans in this study were more than two times more likely than Caucasians to receive radiation therapy. Often times, if the tumor is extensive or it is not feasible to completely remove it, radiotherapy is initially given to try to shrink the tumor. The study showed fewer African Americans (43%) opted for surgery than [Caucasians](#) (49%).
- The tumor tissue samples also held important clues. African American tumors were six to seven times more likely to present with lymphocytic response, which essentially is an entourage of immune system cells. These cells behave not only as first responders against tumors, but can also produce growth factors (chemicals) that feed tumor growth, such as forming blood vessels.
- Compared to Caucasian tumors, African American tumors were almost two times more likely to have loss of the CDKN2A (cyclin-dependent kinase inhibitor 2A) gene and gain of the SCYA3 (small inducible cytokine A3) gene. CDKN2A is important to cell cycle regulation, and the SCYA3 gene product has dual roles of tumor lymph node metastasis and local host defense against tumors in HNSCC.

"Understanding and accounting for factors contributing to differences in [head and neck cancer](#) racial groups will ultimately aid in eliminating disparities and saving more lives from this devastating disease," says Dr. Worsham.

Provided by Henry Ford Health System

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