

Immune cells predict success of head and neck cancer treatment, study finds

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Levels of a key type of immune cell are higher in head and neck cancer patients whose tumors are linked to the human papillomavirus, or HPV, according to researchers at the University of Michigan Comprehensive Cancer Center.

The finding suggests a way to predict which tumors are most likely to respond to chemotherapy and radiation and allow doctors to choose the best treatment option up front.

"In the past, we would give toxic chemotherapy to a patient, look at how the tumor responded and then decide whether the patient needed surgery or radiation. Now with patients who have HPV-positive cancers, this study suggests we can look in the microscope, measure the level of these [immune cells](#) and, based on that, select a treatment that is going to be potentially less toxic for the patient and most effective at curing the cancer," says study author Gregory T. Wolf, M.D., professor and chair emeritus of otolaryngology at the U-M Medical School.

Results of the study will be presented April 29 at the American Head and Neck Society annual meeting.

The researchers looked at 66 patients with oropharyngeal cancer, which includes cancers of the tonsils and the tongue base. They measured levels of several immune system cells in the blood and tracked [HPV](#) status.

The HPV-positive patients had higher levels of a subset of T-lymphocyte

cells, a type of immune cell that is responsible for killing [tumor cells](#). Patients who responded to an initial round of chemotherapy also had higher levels of these cells, while patients whose cancer recurred had lower levels.

"When we looked at how successful chemotherapy and radiation were, the levels of those killer [T-lymphocyte](#) cells predicted who was going to do well. That ability to predict response was even better than when we look at whether the tumors were HPV-positive or negative," says Wolf, director of the Head and Neck Cancer Specialized Program of Research Excellence at the U-M Comprehensive Cancer Center.

Previous studies have shown that HPV-positive head and neck cancers tend to be more responsive to current treatments, and these patients overall tend to have better outcomes than patients with HPV-negative tumors.

The researchers suggest that these new findings could help them devise strategies to boost the immune system of HPV-negative patients and improve the success rate of current therapies.

"We're actively pursuing how we can capitalize on this information and devise better immunotherapy approaches to head and neck cancer that would be less toxic than surgery or intensive radiation and hopefully cure more patients," Wolf says.

Head and neck cancer statistics: 35,720 Americans will be diagnosed with head and [neck cancer](#) this year and 7,600 will die from the disease, according to the American Cancer Society

Provided by University of Michigan Health System

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