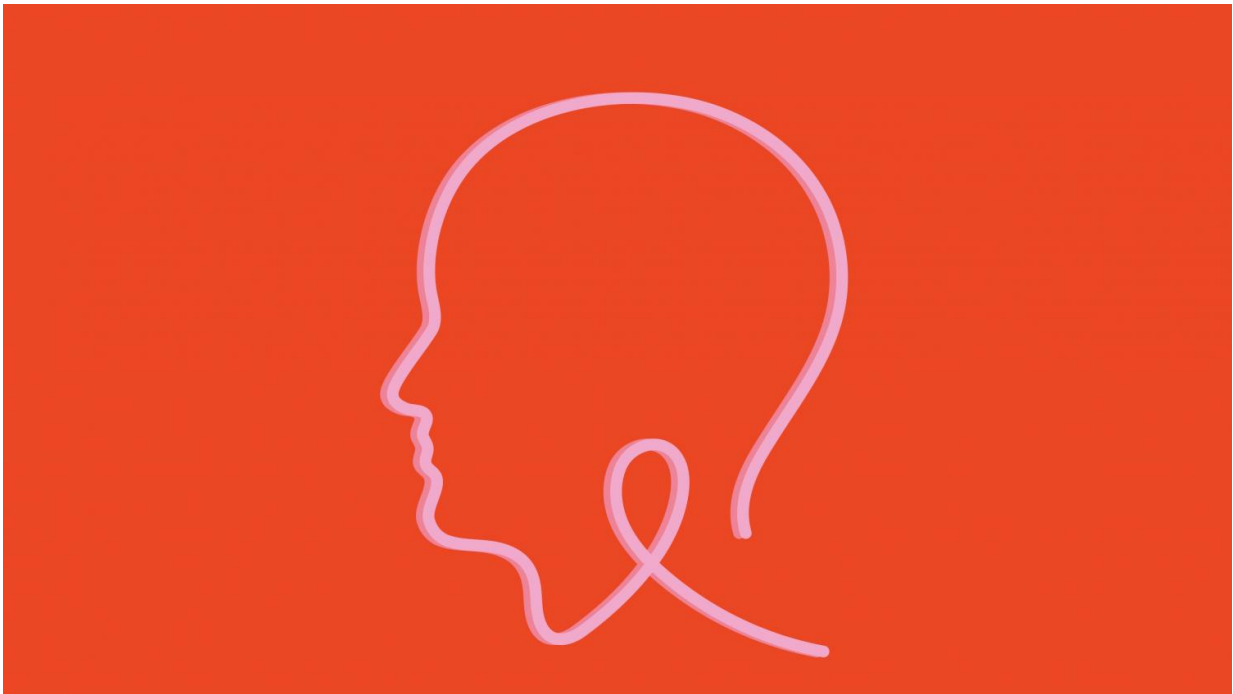


Predicting throat cancer recurrence with a blood test

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Graphic image of head and neck with cancer awareness ribbon. Credit: University of Michigan Health System

A new study suggests the possibility of predicting at its earliest stages when a type of head and neck cancer will come back.

Oropharyngeal cancer—which occurs in the throat, tonsils and back of the tongue—is frequently linked to the human papilloma virus. That's

good news, in a way, as HPV-related cancers are generally more responsive to treatment.

But for about 15 to 20 percent of these [patients](#), the treatment won't work and their cancer will return. There are no known biomarkers to predict when treatments are likely to fail.

In a new study in *Clinical Cancer Research*, researchers found that patients whose oropharyngeal cancer recurred had higher levels of antibodies for two proteins, E6 and E7, which are found in HPV-fueled cancers. The finding suggests a potential blood-based marker that could predict when cancer is likely to return.

For this study, researchers looked back at 52 patients with advanced oropharyngeal cancer who had enrolled in a prior study: 22 who had developed recurrence and 30 who had not. The two groups were similar in age, cancer classification and smoking status. All tumors were linked to the [human papilloma virus](#).

On average, cancer recurred 13 months after a patient's treatment ended. Serum was measured via a blood test at diagnosis or start of treatment, then repeated after treatment ended and about every three months after.

Initially, there was no difference in E6 and E7 antibody levels between those patients who recurred and those who didn't. All patients showed a decline in their antibody levels three months after treatment.

That makes sense, says study author Matthew E. Spector, M.D., assistant professor of otolaryngology at the University of Michigan Health System. After three months, all or most of the cancer had been wiped out. Since oropharyngeal cancer almost never recurs three months after treatment, antibody levels declined in all the patients studied.

"Most patients recur within the first two years, so the window to catch it is two years after treatment. Everyone's level goes down over time, but some start to go up a little—and those are the ones we have to focus on," Spector says.

Finding answers in antibodies

When the researchers looked at E6 and E7 [antibody levels](#) over time, they found that in patients whose cancer recurred, the levels of E7 were not decreasing as quickly as patients who did not recur. And they could begin to detect that prior to the point when the recurrence was discovered.

"If we can monitor someone through blood markers, then instead of a patient coming for a clinic visit every two to three months, they could get blood drawn near home. If there's evidence of high E7, we can tell the patient to come in for more evaluation," Spector says.

The key is to look at the ratio of E7 antibodies. Every patient had a different baseline level, and the absolute level was not an indication.

"It's very patient-specific," Spector says. "Each patient will have different levels, but the question is what happens when you track it over time. If it rises, that suggests recurrence."

Oropharyngeal cancer most commonly recurs in the throat, neck or lungs. If recurrence is caught early, surgery to remove the cancer in the throat or neck can eliminate the disease and is likely to be a cure. If the cancer spreads to the lungs, offering targeted therapies earlier might improve outcomes.

The test for E6 and E7 antibodies is a standard laboratory test that any [cancer](#) treatment facility could perform, so it would likely be

inexpensive to implement.

More testing among a larger number of patients is needed. The U-M team has opened a phase II trial to assess the potential for E7 antibodies as a biomarker for recurrence. For information, call the U-M Cancer AnswerLine at 800-865-1125.

More information: M. E. Spector et al, E6 and E7 antibody levels are potential biomarkers of recurrence in patients with advanced stage human papillomavirus positive oropharyngeal squamous cell carcinoma, *Clinical Cancer Research* (2016). [DOI: 10.1158/1078-0432.CCR-16-1617](https://doi.org/10.1158/1078-0432.CCR-16-1617)

Provided by University of Michigan Health System

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