

# Rise in oropharyngeal cancer incidence not solely driven by HPV in United Kingdom

October 11 2016

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The rise in incidence of oropharyngeal squamous cell carcinoma in the United Kingdom from 2002 to 2011 was not solely attributable to a rise in incidence of human papillomavirus (HPV)-positive disease because the proportion of HPV-positive and -negative cases remained the same throughout that period, according to a study published in *Cancer Research*, a journal of the American Association for Cancer Research.

Oropharyngeal cancer is a type of head and neck cancer. According to the National Cancer Institute (NCI), oropharyngeal [squamous cell carcinoma](#) (OPSCC) is the most common form of oropharyngeal cancer. It includes cancers arising in the tonsil, base of the tongue, soft palate, and the side and back walls of the throat.

"Incidence of OPSCC has been increasing throughout the developed world since the mid-to-late 1990s," said Terry M. Jones, MD, professor of head and neck surgery in the Department of Molecular and Clinical Cancer Medicine at the University of Liverpool, United Kingdom.

"Several studies suggest that this rise was driven by increasing incidence of HPV-positive disease, but we wanted to determine whether this was the case across all four countries of the U.K.

"We were surprised to find that while the overall incidence of OPSCC in the U.K. rose year on year as anticipated, the proportion attributable to HPV remained static, meaning that not only is HPV-positive OPSCC increasing in incidence, but that HPV-negative OPSCC disease incidence is rising in parallel," continued Jones. "This is different to

trends reported elsewhere in the developed world, which illustrates that we cannot generalize the causes underlying the rise in OPSCC incidence between populations; they must be analyzed in a population-specific manner."

Jones explained that because there are multiple factors that cause OPSCC, including HPV infection, smoking, and alcohol consumption, these data have direct and immediate relevance to public health officials whose responsibility it is to develop disease prevention strategies.

To conduct a systematic, nonbiased analysis of the prevalence of HPV-positive OPSCC within incident malignancies across all four countries of the U.K. over a decade-long period, Jones and a large multidisciplinary team of colleagues from many of the major head and neck cancer centers in the U.K., determined the HPV status of archival tumor tissue from 1,602 patients who had been diagnosed with OPSCC from 2002 to 2011. Each sample was analyzed using three validated commercial tests for HPV.

Valid results from each of the three tests were obtained for samples from 1,474 patients. The prevalence of HPV infection among these patients overall was 51.8 percent. When the patient samples were considered by the year of disease diagnosis, the proportion of samples testing positive for HPV did not vary significantly between years, remaining static at about 50 percent.

"The data pertaining to HPV-positive disease provide further evidence in support of a gender-neutral HPV vaccination policy," said Jones. "Our hypothesis is that alcohol consumption is driving the increase in HPV-negative disease, but we do not have clear evidence for this as yet."

According to Jones, the greatest limitation of the study is the restriction of analysis to the countries making up the United Kingdom and therefore

the lack of generalizability to non-U.K. populations.

Of note, the NCI states that in the United States, estimates of the incidence of HPV-positive oropharyngeal cancers increased by 225 percent from 1988 to 2004, while the incidence of HPV-negative cancers declined by 50 percent.

"The magnitude of the increase in incidence of HPV-positive OPSCC in the United States and the United Kingdom over the past few decades is indeed very similar," said Jones. "The striking difference in our findings was that the incidence of HPV-negative disease also rose during the study period, while it has been reported to have declined in the United States. These results suggest that exposures to risk factors for HPV-negative disease may vary markedly between the two countries."

Provided by American Association for Cancer Research

Citation: Rise in oropharyngeal cancer incidence not solely driven by HPV in United Kingdom (2016, October 11) retrieved 7 May 2024 from <https://medicalxpress.com/news/2016-10-oropharyngeal-cancer-incidence-solely-driven.html>

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