

HPV-positive throat cancer patients respond better to radiotherapy alone than HPV-negative patients

May 10 2012

Barcelona, Spain: New findings from a large Danish database of cancer patients suggest that, even though the human papilloma virus (HPV) can trigger throat cancer, patients who are HPV-positive and are light smokers, or don't smoke at all, have a good response to treatment using radiotherapy alone, without the addition of chemotherapy with its consequent toxic side-effects.

Presenting her research at the 31st conference of the European Society for Radiotherapy and Oncology (ESTRO 31) today, Dr Pernille Lassen, a resident in medical and [radiation oncology](#) and researcher at Aarhus University Hospital, Aarhus, Denmark, said that HPV-positive patients with advanced oropharyngeal cancer (cancer of the oropharynx or throat, including the [soft palate](#) and base of tongue) had significantly better control of the [tumour](#) at its primary site, disease-specific survival after five years and overall survival than patients who were HPV-negative.

Further analysis, which looked at smoking history, showed that HPV-positive patients who had a history of less than 10 pack years (one pack year is the equivalent of 20 cigarettes a day for one year) had better outcomes than HPV-negative patients and those with a smoking history of more than 10 pack years.

"We consider the present findings an important contribution to the ongoing debate on how to treat patients according to known independent

[prognostic factors](#), in this case tumour HPV-status and smoking history," said Dr Lassen. "These findings confirm the highly significant independent influence of HPV status on tumour control and survival in advanced oropharyngeal cancer that is treated with radiotherapy alone, without chemotherapy. Our results suggest that the use of radiotherapy alone may be a safe [treatment strategy](#) in patients who are light or non-smokers, while sparing them the side-effects associated with chemotherapy. However, it is too soon to select patients for a specific treatment based on these factors; we still need more data."

Oropharyngeal cancer is uncommon. Figures from the International Agency on Cancer show that lip and oral/pharyngeal cancers affect approximately 400,000 people worldwide each year. The main causes are smoking and drinking heavily; HPV is a known trigger for the tumour, and a poor diet is also linked to an increased risk.

Dr Lassen and her colleagues investigated the outcomes of 181 patients on the Danish Head and Neck Cancer Group (DAHANCA) database, who were treated between 1992-2005 for advanced oropharyngeal cancer – cancer that has spread from the primary site to lymph nodes and beyond. The patients received accelerated radiotherapy (six fractions of radiation over five days in order to reduce the overall length of treatment) together with Nimorazole, an agent that acts as a radiotherapy sensitizer, making cancer cells more receptive to the effects of radiation. No chemotherapy was given. Samples of tumour tissue were analysed to establish HPV status.

"Although HPV status is known to be an independent prognostic factor determining tumour control and survival in radiotherapy for head and neck cancer, it is still not clear what the best treatment is for these patients. Data from the DAHANCA randomised trials has given us the opportunity to look at a group of patients, with known HPV and smoking status, who received radiotherapy without chemotherapy," explained Dr

Lassen.

Out of the 181 patients, 103 had HPV positive tumours (57%). HPV-positive patients had better control of the tumour at its primary site (81% versus 48% of HPV-negative patients), disease-specific survival (90% versus 56%), and overall survival (77% versus 38%).

When the researchers took account of smoking history, HPV-positive, light or non-smokers, had very favourable outcomes. The probability of tumour control at its primary site was 91%, disease-specific survival was 96% and overall survival 90% five years after completion of radiotherapy. In comparison, the corresponding results for HPV-positive heavy smokers were 77%, 81% and 63% after five years.

All but two of the 78 patients with HPV-negative tumours had a smoking history of more than 10 pack years, and their outcome was significantly worse than HPV-positive patients, regardless of pack years. Disease-specific survival in this group was between 50-52%.

Several randomised trials, including the DAHANCA 19 trial, are now investigating treatment of patients according to HPV status. "This will give us important information," said Dr Lassen. "In the meantime, we will try to identify more patients with advanced oropharyngeal cancer and known smoking status in the DAHANCA database, in order to enlarge the present cohort, making the data more robust."

President of ESTRO, Professor Vincenzo Valentini, who is a radiation oncologist at the Policlinico Universitario A. Gemelli in Rome, Italy, commented: "This study confirms the highly significant independent influence of HPV expression on tumour control and [survival](#) in advanced oropharyngeal [cancer](#) treated with radiotherapy, with larger benefit in non-smoking patients, even in a non-chemotherapy setting. This study suggests it would be worthwhile testing the use of a moderately

accelerated [radiotherapy](#) schedule as a single modality in these [patients](#)."

Provided by European Society for Radiotherapy and Oncology

Citation: HPV-positive throat cancer patients respond better to radiotherapy alone than HPV-negative patients (2012, May 10) retrieved 14 May 2024 from

<https://medicalxpress.com/news/2012-05-hpv-positive-throat-cancer-patients-radiotherapy.html>

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