

# Patients with oropharyngeal cancer report quality of voice and speech affected post-treatment

February 20 2014

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Oropharyngeal cancer patients treated with combined chemotherapy and radiation therapy reported a decrease in their voice and speech quality (VSQ) for up to one year after the completion of treatment, according to research presented today at the 2014 Multidisciplinary Head and Neck Cancer Symposium. The study further shows that limiting the dose of radiation to the glottic larynx (GL) to less than 20 Gy resulted in a decrease in post-treatment VSQ problems, and that patient-reported VSQ indicated more adverse effects from treatment compared to independent physician assessment.

The research evaluated the VSQ of 91 [patients](#) with stage III/IV oropharyngeal cancer (OPC) at the University of Michigan. The patients were treated from 2003-2011 on two prospective studies of definitive concurrent chemotherapy and [radiation therapy](#) (CRT), using advanced intensity modulated radiation therapy (IMRT) techniques intended to minimize the radiation dose to the pharyngeal constrictors, salivary glands, oral cavity (OC, the inside region of the mouth), GL, supraglottic larynx and esophagus.

Patients' voice and [speech problems](#) were evaluated and reported independently by patients and their physicians. Patient-reported VSQ was assessed using the communication domain of the University of Michigan's Head and Neck Quality of Life (HNQOL-C) questionnaire and the single speech question on the University of Washington Quality

of Life (UWQOL-S) questionnaire. Patients completed questionnaires prior to treatment, and one, three, six, 12, 18 and 24 months after CRT. Factors associated with worsening patient-reported VSQ were assessed and were defined as a decrease in HNQOL-C or UWQOL-S scores from the patients' baseline evaluations.

A maximum decrease in VSQ was reported at one month post-treatment, with 68 percent of patients reporting worsening HNQOL-C scores and 41 percent reporting lower UWQOL-S scores. Improvements to the scores were seen thereafter, with patients on average reporting scores back to baseline by 12 months post-treatment when scored on the HNQOL-C and by 18 months post-treatment when scored on the UWQOL-S. At 12 months after treatment, however, one-third of patients continued to report a decrease in VSQ compared to baseline, with 33 percent showing lower HNQOL-C scores and 28 percent showing lower UWQOL-S scores.

In contrast, physician assessment was much less sensitive to voice and speech problems at post-treatment, with VSQ reported (grade one toxicity) by physicians in only 5 percent of patients at three months and 0 percent at either one or two years.

On further analysis, voice quality worsening (as reported by patients) was closely related to the radiation dose received by the GL (the voice box), while patient-perceived speech difficulty was related to radiation dose received by both the GL and OC. Worse patient-reported HNQOL-C scores at six months post-treatment were correlated with mean radiation dose to the GL, with 25 percent of those whose GL received less than 20 Gy; 33 percent who received >20-30 Gy; 59 percent who received >30-40 Gy; 50 percent who received >40-50 Gy; and 64 percent who received >50 Gy reporting worse scores at six months compared to pre-treatment. The association of worse HNQOL-C scores with dose to the GL persisted at the 12-month post-treatment mark, as

reported by 10 percent of patients whose GL received less than 20 Gy; 32 percent receiving >20-30 Gy; 25 percent receiving >30-40 Gy; 30 percent receiving >40-50 Gy; and 63 percent receiving >50 Gy, ( $\chi^2$  for trend  $p=0.02$  at six months,  $p=0.011$  at 12 months).

"In contrast to chronic mouth dryness and swallowing difficulties, which have been recognized for years as potential complications in patients receiving radiation therapy for cancers of the head and neck, relatively little attention has been directed to treatment-related changes in voice and speech quality," said Jeffrey Vainshtein, MD, lead author of the study and chief resident in the Department of Radiation Oncology at the University of Michigan. "The wide discrepancy between patient- and physician-reporting of voice and speech changes in our study underscores the fact that physicians may tend to underestimate the detrimental effects of head and neck radiation on this aspect of our patients' quality of life. Our findings suggest that minimizing the [radiation dose](#) to the voice box and oral cavity in situations where they are not at risk of involvement by cancer is likely to reduce voice and speech problems, and thus improve post-treatment quality of life. Additionally, our research serves as a reminder of the critical role that patient-reported outcomes must continue to play in guiding modifications to our current therapies in order to ultimately improve our patients' quality of life."

**More information:** The abstract, "Prospective Study of Voice and Speech Quality After Chemo-IMRT for Oropharyngeal Cancer - Clinical and Dosimetric Predictors & Differences between Patient and Observer Reporting," will be a Poster Presentation at the 2014 Multidisciplinary Head and Neck Cancer Symposium.

Provided by American Society for Radiation Oncology

Citation: Patients with oropharyngeal cancer report quality of voice and speech affected post-treatment (2014, February 20) retrieved 19 April 2024 from <https://medicalxpress.com/news/2014-02-patients-oropharyngeal-cancer-quality-voice.html>

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