



Embargoed until 8:00 a.m. MT, Thursday, February 20, 2014

Contact: Michelle Kirkwood
michellek@astro.org
703-286-1600

Press Room Phone:
February 20-21
480-596-7085

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

Study indicates limiting radiation dose to the glottic larynx beneficial

Scottsdale, Ariz., February 20, 2014—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, (χ^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.”

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. To speak with Dr. Vainshtein, contact Michelle Kirkwood on February 20 – 21, 2014 in the ASTRO Press Office at the JW Marriott Camelback Inn Resort and Spa in Scottsdale, Arizona at 480-596-7085 or email michellek@astro.org.

The 2014 Multidisciplinary Head and Neck Cancer Symposium is sponsored by the American Society for Radiation Oncology (ASTRO), the American Society of Clinical Oncology (ASCO) and the American Head & Neck Society (AHNS). The two-and-a-half day meeting includes interactive educational sessions focused on topics such as supportive care, directed therapy, new surgical and radiotherapeutic techniques, as well as 12 oral abstract presentations of the current science of relevance to the head and neck cancer community. A total of 189 abstracts will be presented including 177 posters. Keynote speakers include Jennifer Grandis, MD, of the University of Pittsburgh, to present “The Molecular Road to Defining and Targeting High-risk Head and Neck Patients;” and Julia H. Rowland, PhD, of the National Cancer Institute, to present “Cancer Survivorship: Research Opportunities on the Path to Where We Want to Be.”

#

**2014 Multidisciplinary Head and Neck Cancer Symposium
News Briefing, Friday, February 21, 2014, 7:00 a.m. Mountain time**

Poster Presentation

121 Prospective Study of Voice and Speech Quality After Chemo-IMRT for Oropharyngeal Cancer - Clinical and Dosimetric Predictors & Differences between Patient and Observer Reporting

J. M. Vainshtein, K. Griffith, F. Y. Feng, K. Vineberg, F. Worden, C. R. Bradford, G. T. Wolf, D. B. Chepeha, A. Eisbruch, *University of Michigan, Ann Arbor, MI*

Background: Although adverse sequelae of chemoradiation (CRT) for head and neck cancer (HNC) have been extensively detailed in recent years, the effects of CRT on voice and speech quality (VSQ) remain poorly characterized. We investigated changes in patient-reported VSQ after CRT in two prospective studies of organ-sparing CRT for locally advanced oropharyngeal cancer (OPC).

Methods and Materials: 91 patients with stage III/IV OPC treated at our institution on two prospective studies of definitive CRT from 2003-2011 were included. All received whole-field neck IMRT intended to minimize dose to the pharyngeal constrictors, salivary glands, oral cavity (OC), glottic larynx (GL), supraglottic larynx, and esophagus. PRVSQ was assessed by the Communication Domain of the Head and Neck Quality of Life (HNQOL-C) questionnaire and the Speech question of the University of Washington QOL (UWQOL-S) questionnaire at pretreatment and 3, 6, 12, 18, and 24 months after CRT. Factors associated with worsening patient-reported VSQ (defined as a decrease in HNQOL-C or UWQOL-S from baseline) were assessed.

Results: Patient-reported VSQ decreased maximally at 1-month, with 68% and 41% of patients reporting worsening HNQOL-C and UWQOL-S scores compared to baseline, and improved thereafter, with recovery of mean population HNQOL-C and UWQOL-S scores to baseline by 12 and 18 months, respectively. At 12 months, however, 33% and 28% of patients continued to report lower HNQOL-C and UWQOL-S scores, respectively, than prior to CRT. In contrast to patient-reported effects, observer-rated larynx toxicity was rare, with only grade 1 toxicity reported by 5% at 6 months and 0% at 12 months. Of patients with mean GL dose of less than 20 Gy, >20-30 Gy, >30-40 Gy, >40-50 Gy, and >50 Gy, 25%, 33%, 59%, 50%, and 64% reported worse HNQOL-C scores at 6 months compared to pretreatment, which persisted at 12 months in 10%, 32%, 25%, 30%, and 63% of patients, respectively (χ^2 for trend $p=0.02$ at 6 months, $p=0.011$ at 12 months). Results using a worsening UWQOL-S score endpoint were similar. Mean GL dose, mean OC dose, N2/3 stage, and shorter time since RT completion were associated with worsening HNQOL-S ($p<0.05$) on univariate analysis. On multivariate analysis, mean GL dose remained independently predictive for worsening HNQOL-S after CRT (odds ratio 1.08 per Gy; $p<0.01$).

Conclusions: In the largest prospective study to assess VSQ after CRT for OPC, worsening VSQ was frequently reported by patients, under-recognized by clinicians, and independently associated with dose to the GL. These findings support limiting mean GL dose to <20 Gy during whole neck IMRT for HNC when the larynx is not a target.

Author Disclosure Block: J.M. Vainshtein: None. K. Griffith: None. F.Y. Feng: None. K. Vineberg: None. F. Worden: None. C.R. Bradford: None. G.T. Wolf: None. D.B. Chepeha: None. A. Eisbruch: None.