Commentary (Spaulding): Speech and Swallowing Rehabilitation for Head and Neck Cancer Patients

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Logemann and colleagues highlight an aspect of the treatment of patients with head and neck cancer that is frequently ignored; ie, the importance of rehabilitation efforts and evaluations of post-therapy quality of life. As oncologists, whether surgical, radiation, or medical, our studies and publications have traditionally focused on overall survival, disease-free survival, and, particularly in the management of head and neck cancer, local control of disease. More recently, investigators have begun to address quality of life when constructing studies for patients with all kinds of malignancies, and newer performance outcome instruments have been designed specifically for patients with head and neck cancer.[1]

As noted, it is extremely important that rehabilitation plans, the patient's lifestyle, occupation, and support system, and other factors be considered in decisions about therapy. In reviewing the literature on speech and swallowing problems in patients with head and neck cancer who have been treated with different single or combined modalities, the authors allude to the multitude of sites and the variations in treatment modalities that make studies difficult. There are, unfortunately, few randomized trials comparing treatments that include quality-of-life assessments and even fewer that examine swallowing function.

The consequences of surgical resection are intuitively obvious, so it is not surprising that the greater the resection of the oral tongue or tongue base and the greater the reconstruction and utilization of inert tissues from other parts of the body, the greater are the swallowing problems. However, it is important to appreciate that radiation therapy to the pharynx can alter tongue movement, affecting speech, and can chronically impair pharyngeal wall motion, inhibiting swallowing.

Effects of Combined-Modality Therapy Require Careful Study

The authors have previously demonstrated the long-term fibrosing effect in patients who receive radiotherapy alone for cancer of the oral cavity and pharynx. Whether this effect is worsened in studies in which combined-modality therapy is given needs to be studied carefully. Patients with massive tumors already have impaired speech and/or swallowing function, and the combined effects of surgery and radiotherapy will certainly have a greater impact than either modality alone. In the past, it was thought that disease control and cure rate were different enough with combined-modality approaches to justify their use. With better chemotherapy, improved radiotherapy, and treatment protocols that focus on organ preservation, it is important that swallowing and speech patterns be studied as enthusiastically as are dose intensification, hyperfractionation, and survival.

Organ-preservation trials in head and neck cancer are based on the premise that quality of life and performance status are likely to be better in patients who can avoid ablative surgery. That is not necessarily true, as the combined effect of chemotherapy and radiation may have significant toxicity, depending on various factors. These include the specific chemotherapeutic agents utilized, whether the chemotherapy is given as an induction regimen or concurrently with radiation, the daily dose of radiotherapy, the intensity of the radiotherapy, the total dose of radiotherapy, and the area receiving radiation.
The value of randomized trials cannot be understated. Lazarus et al recently reported on a carefully done study of swallowing mechanics in nine patients with stage IV pharyngeal cancers who had been treated with chemotherapy plus radiotherapy.[2] All had received the same induction regimen (doses and drugs utilized were not described), and six had also received concurrent radiation. All were evaluated during or within 6 months after the completion of treatment. Eight of the nine patients aspirated during a video-fluoroscopic study. Compared with normal subjects, the treated patients had marked abnormalities in other aspects of the swallowing process, including reduced coordination and abnormal timing of pharyngeal events. A simultaneous chart review of patients previously treated by radiation alone for pharyngeal cancers showed only a 40% incidence of swallowing abnormalities.

A direct comparison of the two populations is not valid since patients treated with the combined therapy presumably had significantly larger tumors. The results raise an important question about long-term chronic changes from combined chemotherapy and radiotherapy.

McDonough et al recently described preliminary data on 24 patients who were treated with chemotherapy (carboplatin [Paraplatin] and paclitaxel [Taxol]) followed either by radiotherapy alone or by surgery plus radiotherapy.[3] The authors used a quality-of-life assessment that encompassed level of activity, eating (including chewing and swallowing), and speech. Patients were evaluated at eight points, including pretreatment, post-chemotherapy, during radiation treatment, and yearly for 5 years post-radiation. Patients' quality of life improved after chemotherapy but declined after surgery and radiation.

Although the study is small and results are early, it is clear that patients who received only radiation treatment after chemotherapy had an improved quality of life compared with those treated with surgery plus radiation after chemotherapy. This study supports organ preservation but clearly has its limitations.

**A Large Randomized Study**

In a larger randomized study conducted by the Department of Veterans' Affairs Cooperative Studies Program, patients with laryngeal cancer were randomized to standard therapy (surgery followed by radiotherapy) or an experimental arm of chemotherapy followed, in responders, by radiotherapy.[4] The primary goal of the study was to demonstrate improved survival in the experimental group, but the secondary goal was to preserve the larynx and thereby improve quality of life. The assumption was that patients treated without losing their voice would be better off from the standpoint of communication and with regard to other quality-of-life issues, such as swallowing function, eating, and employability.

Various measurements were used to acquire information about the quality of voice and life prior to treatment and during treatment, rehabilitation, and follow-up. All patients were assessed pretreatment and at 1, 6, 12, and 24 months post-treatment. At the time of assessment, high-quality voice recordings were done by speech pathologists as the patients performed standardized tasks. Additional data were obtained on patients’ living environment, social activities, swallowing and other eating behaviors, and usual mode of communication.

The results for speech and communication clearly supported the basic premise of the trial.[unpublished data, Department of Veterans Affairs Laryngeal Cancer Study Group, 1996] Patients whose larynx was preserved by chemotherapy and radiation not only regained pretreatment levels of functioning, in terms of intelligibility of speech and reading rate, but also exceeded their pretreatment evaluation on the general communication profile.

Swallowing function in this study was evaluated primarily by patient self-report, not by the exquisite methods described by Logemann et al. Nevertheless, one might assume that surgically treated patients would have described more problems with eating. In fact, although there was little difference in the overall recovery of swallowing in the two groups, there was a higher incidence of xerostomia and overall weight loss among those patients treated by chemotherapy and radiotherapy. Overall, almost 30% of the patients studied continued to report problems with swallowing more than 2 years after completion of their treatment.

Similar organ preservation trials are or have been in progress in many centers. The authors describe important standardized tests to evaluate swallowing that should be included in quality-of-life assessments so that objective data can support subjective findings.

**References:**


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