Survival after organ preserving treatment for T4a laryngeal squamous cell carcinoma

We read with interest the study published by Knab et al. [1] that had brought to our attention the need to further investigate the convention that patients with large volume T4 (LVT4) laryngeal tumors (LTs) should be treated with upfront laryngectomy. LVT4 LTs are defined as tumor extension >1 cm into the base of the tongue or extension of the tumor through the thyroid cartilage [2]. Randomized trials in patients with stages 3 and 4 locally advanced LT have demonstrated that outcome after induction chemotherapy followed by RT may be equivalent to surgery. For example, the Veterans Affairs study [3] resulted in a 64% rate of organ preservation rate and equivalent disease-free and overall survival (OS) to that of upfront laryngectomy. Since the study conducted by Knab et al. [1] primarily included patients with T4a disease (23 of 32 patients), we sought to further explore the possibility that upfront surgery may not be superior to primary radiation (± chemotherapy). The primary end point of our study was OS and relative survival (RS) (as defined below) because the limitations of our data set do not allow us to evaluate organ function or quality of life (as outlined below).

The Surveillance Epidemiology and End Results (SEER) program of the National Cancer Institute routinely collect data on patient demographics, primary tumor site, tumor morphology, and stage of cancer at the time of diagnosis by means of using standardized procedures and forms [4]. Clinico-pathologic, treatment, and surgical information were obtained on patients registered in SEER from the years 1998 to 2007. Data on patients with T4a, any N and M0 or MX LT were obtained by using American Joint Committee on Cancer staging system (6th edition). We examined those who had upfront primary laryngeal surgery (PLS) or upfront radiation ± chemotherapy (±c). Patients who did not have upfront PLS were selected based on those who were not recommended to have surgery, those who had refused it, or the reason was listed as unknown.

A total of 794 patients met the above study criteria. Patients’ follow-up data were available for 44 months from diagnosis. OS was defined as an estimate of the probability of surviving all causes of death for a specified time interval calculated from the cohort of cancer cases. RS was defined as the ratio of the proportion of observed survivors in a cohort of cancer patients to the proportion of expected survivors in a comparable set of cancer-free individuals. The OS and RS of the 364 patients who had undergone PLS followed by radiation therapy (XRT) ± c (group A) were 57.3.0% [standard error (SE) of 3.8% with a corresponding 95% confidence interval (CI) ranging from 49.4% to 64.3%] and 61.3% (SE 4.1% with a corresponding 95% CI from 52.8% to 68.7%), respectively. The OS and RS of the 307 patients who had primary XRT ± C but no PLS (group B) were 29.5% (SE 4.7% with a corresponding 95% CI from 20.6% to 38.8%) and 32.1% (SE 5.1% with
a corresponding 95% CI from 22.4% to 42.2%), respectively. The OS and RS of 123 patients who had PLS only and no XRT (group C) were 37.9% (SE 6.9% with a corresponding 95% CI from 24.7% to 51.0%) and 41.2% (SE 7.5% with a corresponding 95% CI from 26.6% to 55.2%), respectively. Median survival of group A is not yet available; however, the observed median survival of groups B and C were 22 and 30 months, respectively. We conclude that primary surgical approach to T4a laryngeal cancer remains the standard of care and further studies need to be conducted to address the role of primary chemoradiation.

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references

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