

PALLIATIVE RADIOTHERAPY IN HEAD AND NECK CANCER

Akhtar PS¹

Head and neck cancer actually includes many different malignancies. Squamous cell carcinoma represents more than 90% of all head and neck cancers¹. Behavior of squamous cell cancer of head neck region depends on its site of origin. Each anatomic site has its own particular spread pattern and prognosis. Direct extension of disease from the primary site to adjacent areas as well as a spread to lymph nodes in the neck is relatively common than the spreading through blood vessels to distant sites in the body. The lymph nodes most commonly involved are located along major blood vessels underneath the sternocleidomastoid muscle on each side of the neck, particularly the internal jugular vein node at the angle of the jaw.

Squamous cell carcinoma of head and neck (SCCHN) represent a significant treatment challenge because the disease is within an anatomic environment that contains several critical tissues, such as the spinal cord, salivary glands, mandible, nerves, major blood vessels and the organs of speech, swallowing, hearing and respiration. Common symptoms include pain, dysphagia, odynophagia, otalgia, hoarseness, cough and respiratory distress. There can be significant overlap between symptoms and treatment toxicity.

The three main types of treatment for managing head and neck cancer are radiation therapy, surgery and chemotherapy. Early stages SCCHN (stage I and II) are generally managed with either surgery or radiation therapy (RT). The overall cure rate ranges from 60 to 98 percent, depending upon the stage, and disease site. Locoregionally advanced, potentially resectable diseases (stages III, IVa or IVb) are generally managed with some combination of RT, surgery and chemotherapy, and five-year survival rates of approximately 40 to 50 percent can be achieved^{2,3}. Concomitant chemotherapy and RT is an alternative approach but do not appreciably improve long-term survival rates over those achieved by surgery and RT. But an important benefit is that preservation of organ function is possible for patients with larynx or hypopharyngeal primary tumors, 85 and 50 percent of the time, respectively⁴.

The patients with locoregionally advanced, unresectable SCCHN have a poor prognosis, with five-year survival

rates of only 10 to 30 percent using RT alone. Concomitant chemo-radiotherapy (CRT) produces a distinct survival advantage over either RT alone. However, the improved overall clinical outcomes in the CRT plus hyper-fractionated radiotherapy studies comes at the cost of significant treatment-induced acute morbidity; thus, they are best utilized in patients with high performance status, and in a very experienced treatment center. Standard fractionation of radiotherapy in SCCHN is 2 Gy/fraction per day, five days per week, total dose 70 Gy in 6 and half weeks period and hyper-fractionation RT schedule is 1.2 Gy/fraction, twice daily (4-6 hours interval) five days per week, total 81.6 Gy in 6 and half weeks.

Palliative courses of treatment generally entail giving a moderate dose of radiation over a short time. This provides a relatively high chance of shrinking the tumor and lessening symptoms while exposing the patient to less risk of side effects and complications, and requiring a relatively brief time to complete the therapy. A typical course of palliative radiation treatments would be divided into 10 treatments given over two weeks.

Squamous cell carcinoma of head and neck (SCCHN) is one of the commonest cancers seen in Bangladesh, constituting up to 25% of their overall cancer burden⁵ and one third of work load in the department of radiation oncology⁶. The vast majority of them present with loco-regionally advanced disease, with only 10-20% presenting in early stages amenable to cure. It is indeed unfortunate that less than 10% of the peer-reviewed published literature on SCCHN comes from the developing world where it is largely prevalent⁷. A significant proportion of advanced stage head and neck cancer patients are incurable and have a limited life expectancy. Advanced SCCHN patients usually die of uncontrolled loco-regional disease. The five-year survival even with aggressive treatment is less than 20%, with a median survival of around 12 months⁸.

Curative intent management of loco-regionally advanced SCCHN has become more evidence-based with active clinical research in the form of large prospective randomized controlled trials and meta-analyses. However, little has been written about palliative

1. Parveen Shahida Akhtar MBBS, FCPS, Professor of Medical Oncology, National Institute of Cancer Research and Hospital, Dhaka.

radiotherapy (PRT) in head and neck cancers. It is widely recognized that PRT provides effective palliation and improved quality-of-life in advanced incurable malignancies.

In the absence of reliable and robust prognostic factors, it is common to recommend radical loco-regional treatment even for advanced SCCHN with the intent of maximizing loco-regional control and achieving a potential cure. It is often difficult to identify subsets of patients with advanced disease best suited for palliative therapy alone as compared to those in whom radical intent treatment could still be considered. The factors that should guide the treating oncologist in choosing patients for palliative intent treatment alone are i) inoperable, fixed and unresectable disease; ii) very advanced loco-regional disease not amenable to cure; iii) poor physical condition and medical co-morbidities; iv) widely metastatic disease; v) achievable symptomatic relief; and vi) short life-expectancy.

This issue of JAFMC has published an original paper on this subject. Authors have conducted a three years long study to observe the effect of short course palliative radiotherapy in locally advanced squamous cell carcinoma of head and neck region. Radiotherapy of 30 Gray in 10 fractions over 2 weeks achieved good relief in symptoms after radiotherapy. Their observation

supports that radiotherapy is an effective treatment modality for sustained symptoms relief with good response rates and acceptable toxicity in locally advanced head-neck cancer.

Reference

1. Ridge JA, Glisson BS, Lango MN, Feigenberg S, Horwitz EM. Head and Neck Tumors. In: Pazzdur R, Wagman LD, Camphausen KA, Hoskins WJ, editors. *Cancer Management: A Multidisciplinary Approach*. 11th ed. NY, USA: Cmp United Business Media; 2008.p.chapter 4.
2. Forastiere AA, Goepfert H, Maor M, Pajak TF. Concurrent chemotherapy and radiotherapy for organ preservation in advanced laryngeal cancer. *N Engl J Med* 2003; 349: 2091.
3. Soo KC, Tan EH, Wee J, et al. Surgery and adjuvant radiotherapy vs concurrent chemoradiotherapy in stage III/IV nonmetastatic squamous cell head and neck cancer: a randomised comparison. *Br J Cancer* 2005; 93: 279.
4. Pfister DG, Laurie SA, Weinstein GS, et al. American Society of Clinical Oncology clinical practice guideline for the use of larynx-preservation strategies in the treatment of laryngeal cancer. *J Clin Oncol* 2006; 24:3693.
5. Talukder MH, Jabeen S, Islam MJ, et al; Cancer Registry, National Institute of Cancer Research & Hospital, 2005-2007. Dhaka: NICR&H, Ministry of Health and WHO; Dec 2009.
6. One year (2008) data Analysis of 3262 cancer patients treated by Radiotherapy in the Department of Radiation Oncology, National Institute of Cancer Research & Hospital, Dhaka. (not yet published).
7. Vikram B. Cancers of the head and neck region in developing countries. *Radiother Oncol* 2003; 67: 1-2
8. Grau C, Agarwal JP, Jabeen K, Rab Khan A, Abeyakoon S, Hadjieva T. Radiotherapy with or without mitomycin c in the treatment of locally advanced head and neck cancer: Results of the IAEA multicentre randomized trial. *Radiother Oncol* 2003; 67: 17-26.