

FAST FACTS AND CONCEPTS #336
RAPID RADIATION THERAPY FOR ADVANCED CANCER OF THE HEAD AND NECK
Shayna E. Rich, MD, PhD; William M. Mendenhall, MD

Standard course radiation therapy used for curative or life prolonging intent for head and neck cancer lasts up to 6-7 weeks. Besides the burden to patients and caregivers for visits at least five times per week, standard radiation can ensue significant side effects and financial cost. Clinicians should be aware of a more abbreviated, rapid radiation therapy (RRT) course as a palliative treatment for head and neck cancer. See *Fast Facts* #66 and 67 for more information about palliative radiation therapy in general.

Selection Factors for RRT Head and neck cancer patients with pain, bleeding, dysphagia, or wounds, may be RRT candidates if they have the following characteristics:

- Metastatic or surgically unresectable cancer who are unlikely to be cured with chemoradiotherapy.
- Medical comorbidities, a poor performance status (e.g. ECOG >2), or treatment preferences that would preclude surgical treatment or usual radiation treatment course.
- An anticipated prognosis of < 6 months.
- Prior radiation therapy to the same anatomic region or a poorly controlled connective tissue disorder (relative contraindications for standard radiation therapy).

RRT Dose Schedules Multiple schedules have been described in head and neck cancer. They are referred to as hypofractionation—that is, they are given in fewer, larger doses or fractions than standard fractionation.

- 30 Gray (Gy) delivered in 10 fractions given daily Monday-Friday (1) or 5 fractions given 2 days/week at least 3 days apart (2)
- 20 Gy delivered in 5 fractions given daily (1) or 2 fractions given 1 week apart (3)
- The “Quad shot” (14 or 14.8 Gy) delivered in 4 fractions given twice-daily at least 6 hours apart on 2 consecutive days (2,4-7). If the patient tolerates and the tumor does not progress, it can be repeated every 4 weeks a maximum of 3 times.

Effectiveness There is a lack of robust comparative data regarding treatment effect in RRT compared to standard radiation for head and neck cancer patients. Most studies have been retrospective or with small sample sizes and inconsistent follow-up. Still, they have demonstrated a significant improvement in symptom burden for 60-80% of advanced head and neck cancer patients treated with RRT regardless of dose schedule (1,2,4,5,6). This includes significant improvements in pain (1,2,4-6), improved or stable dysphagia (4-6), and improvements in patient reported quality of life (2,4). Most patients also achieve at least partial response of objective tumor bulk both at the primary and nodal sites (2). Although median survival is limited to a few months in these studies, a small number of RRT subjects had a durable response and survival > 1 year (2-5).

Treatment Burden and Toxicity There is a lack of robust comparative data regarding toxicity and treatment burden between standard radiation and RRT. The following potential advantages with RRT have been described by experts in the field and in retrospective studies (1,4-6):

- Grade 3 or higher mucositis toxicity is limited to <10% for patients treated with RRT.
- Acute side effects such as skin desquamation, alopecia, fatigue, mucositis, or xerostomia usually resolve sooner with RRT because such side effects usually resolve a few weeks after the completion of an abbreviated course.
- The relatively low total radiation doses used in RRT may result in fewer long-term complications such as chronic xerostomia, non-healing wounds, osteo-necrosis, or blindness, but many advanced head and neck cancer patients die prior to the development of late complications regardless.
- Patients may be better able to tolerate RRT, as treatments are shorter and reduced in number. This can be particularly important for patients who have a poor functional status, live far from a radiation treatment center, or are delaying hospice enrollment until radiation completion.

Cost The cost of radiation therapy varies by the number of fractions, type of technology used, number of radiation fields, and institution. Besides using fewer fractions, RRT is usually provided with simpler

technology and fewer fields. As a result, RRT is usually much less expensive. At one institution, a 30 Gy RRT course is associated with approximated costs of \$3300, whereas standard radiation course would be approximately \$8200.

Summary Selected patients with advanced head and neck cancers may receive quality of life and symptom benefit from RRT within a few weeks with minimal toxicity even when life expectancy is short. Thus, RRT may be an appropriate alternative to standard radiation.

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Authors' Affiliations: Mayo Clinic Florida, Jacksonville, FL; University of Florida, Gainesville, FL.

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