

Single energy electrons for chest wall radiation therapy: A simple and elegant option

Durgapoorna Menon, Prameela G Chelakkot, Beena Kunheri and T K Padmanabhan

Department of Radiation Oncology, Amrita School of Medicine, Kochi. Amrita Institute of Medical Sciences and Research Centre, Amrita Vishwa Vidyapeetham, Amrita University, India

Purpose: Radiation therapy to the post mastectomy chest wall is traditionally done with a tangent pair or with a few different energy electrons. We describe our experience in delivering post-mastectomy chest wall radiotherapy using a single electron beam.

Methods: The medical records of patients with breast cancer treated with post-mastectomy radiotherapy from January 2005 to December 2015 were retrospectively analyzed.

Results: A total of 718 patients received adjuvant post-mastectomy radiation therapy. There were 8 male patients. 588 patients (81.9%) had a locally advanced breast cancer (T3-4, any N, M0; or T1-2, N2-3, M0). Of these, 117 patients (19.89%) had had neoadjuvant chemotherapy followed by mastectomy. All patients received radiation therapy to the chest wall using electron energies of 6-12MeV. The most common energy used was 8MeV, prescribed most commonly to the 85% isodose line. All of them received radiation to axilla and supra-clavicular fossa (SCF) as per the institutional protocol. Unless clinically enlarged, the internal mammary chain was not intentionally included in the CTV although the area did receive 40-60% of the prescription dose. 159 patients received hypofractionated radiation therapy according to the START B protocol and the rest were treated with the standard dose of 50Gy in 25 fractions. At the time of analysis, 412 patients were alive with a median follow up of 70.8 months (range 12-130 months). The 5-year local control was 95.5%. The 5-year recurrence rates in the chest wall, supraclavicular node, axilla, and internal mammary chain were 1.7%, 2.1%, 2.8%, and 0%, respectively. Treatment related toxicity was low, with the incidence of symptomatic pneumonitis being 0%. Grade I skin reaction was seen uniformly. Grade II skin reaction rate was 6.3%. Grade I skin changes persisted even on follow up.

Conclusions: Single electron beam radiation therapy can be easily incorporated into clinical practice and is associated with excellent local control and very low toxicity.