

EARLY AND SAVE TUMOR RESPONSE USING IMAGE GUIDED CONCOMITANT BOOST RADIOTHERAPY TECHNIQUE

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INTRODUCTION / PURPOSE

Local control of disease is often one of the main objectives in patients with advanced unresectable head and neck, lung, cervical and brain tumors.

The innovation of image-guided radiotherapy offers the opportunity to safely apply a supplementary dose to the macroscopic disease. This accelerated radiotherapy course (known as concomitant boost) has the advantage of increasing the total dose delivered and tumor response without increasing the number of fractions.

METHODS / MATERIALS

From May 2009 to May 2010, 127 patients were treated with concomitant boost technique.

The distribution of primary tumors was 73 patients with lung cancer, 33 patients with head and neck cancer, 11 patients with brain tumors and 14 patients with cervical cancer. Patients received chemotherapy during radiation therapy. Patients were treated using the conformal or VMAT techniques. Planning target volume (PTV) was treated daily with 1.8 Gy/fx 5 to 6 weeks to a total dose of 45-54 Gy, while the dose to the Gross Tumor Volume (GTV) was boosted up to 50-55 Gy depending on the anatomic region. Organs at risk were irradiated to safe limits. In 70% of the patients we reevaluated the treatment plan due to local tumor regression using image guidance data (IGRT).

RESULTS

All patients completed the treatment plan with no major toxicity.

Follow up was scheduled at the end of the treatment, three and six months after.

All patients achieved local tumor control, 73 patients with complete tumor response, 33 patients with partial response and 14 with stable disease.

CONCLUSIONS

Concomitant boost in combination Image-Guided Radiotherapy (IGRT) for head and neck and other treatment for patients with unresectable carcinoma. Results are encouraging and promising regarding early therapeutic disease control.



Applying IGRT during radiotherapy for head and neck carcinoma.



Boost planning for the gross tumor volume and the target volume.



Replanning: Reevaluation of the target and the organs at risk with IGRT data to treat early response.



Replanning in patient with cervical cancer: Replanning requires IGRT. Radiation therapy with the technique concomitant boost.