AbstractID: 1536 Title: The Significant Effects Of Increasing Parotid Gland Dose Due TO The Volume Reduction Of Parotid Glands In Patients With Nasopharyngeal Cancer Receiving INTENSITY-MODULATED RADIATION THERAPY: The Importance Of 2ND CT Scan

Abstract:

Intensity-modulated radiation therapy (IMRT) has become the new promising treatment of nasopharyngeal cancer (NPC). In our department, a second CT simulation was routinely performed in NPC patients receiving IMRT. In this study, we intend to quantify the importance of the volume shrinkage of parotid gland and its influence on the dose distribution of parotid glands during the IMRT treatment of NPC. Ten patients with NPC were enrolled into this study. The GTV, CTV1,CTV2 and parotid glands were contoured on CT images and received a prescribed dose of 70-72 Gy, 60-66 Gy and 46-50 Gy respectively. The second CT scan images were acquired after the patient had received 41.4 to 46.8 Gy of prescribed dose. A second IMRT plan was generated for the reduced-fields treatment. We also created a reduced plan for the 1st CT images to assume that if no 2^{nd} CT images were available for those patients. We observed that the parotid gland volumes had decreased from mean volume 30.7 cm^3 of right and 29.5 cm^3 of left parotid glands to 23.2 cm^3 and 21.3 cm^3 respectively. The mean changes of right and left parotid glands volume are -22.6% and -26.4% respectively. The mean dose of right and left parotid glands volume have increased from 3611.5 cGy and 3957.2 cGy to 4188.6 cGy and 4321.3 cGy respectively. We conclude that the volume of parotid glands decreased significantly during the course of IMRT and a 2^{nd} CT is needed for the IMRT treatment of NPC.