

## **Assessment of Parotid Gland Related Acute Side Effects after 3-D Conformal Radiotherapy and Intensity Modulated Radiotherapy in Head and Neck Radiotherapy**

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Radiotherapy for patients with head and neck cancer is extremely complex and has evolved as a result of the introduction of conformal and intensity-modulated radiotherapy techniques. The primary goal of radiotherapy is to achieve local tumor control while minimizing damage to vital organs. Exceeding the tolerance dose of the parotid gland during radiotherapy to head and neck tumors can lead to many side effects. This study aimed to assess the parotid gland related acute side effects of the techniques named Three-Dimensional Conformal Radiation Therapy (3DCRT) and Intensity Modulated Radiation Therapy (IMRT) used to treat patients with Head and Neck Cancer. A retrospective study was conducted with 120 patients who received radiotherapy for head and neck cancers between March 2022 and November 2022 at major radiotherapy units in Sri Lanka. Side effects due to irradiation of the parotid gland were assessed through a questionnaire. Moreover, the prevalence of parotid-related acute side effects among different diagnoses of head and neck cancers was analyzed using descriptive statistics. An additional sub analysis was conducted to compare the side effects among these participants in both groups. No significant association for the presence of any of the three side effects was indicated with either of the two techniques. The association for the presence of any of the three side effects with the radiotherapy technique was not significant. Xerostomia and dysphagia were reported by a higher percentage of patients with carcinoma of the tongue and buccal mucosa. Both 3DCRT and IMRT demonstrated similar abilities to spare the parotid gland. The occurrence of acute side effects related to the parotid gland did not show a significant dependency on the radiotherapy technique used. However, xerostomia was reported by a large number of patients with carcinoma of buccal mucosa and cheek in both IMRT and 3DCRT groups.

**Keywords:** Head and Neck cancer, Parotid gland, Intensity-modulated Radiotherapy, Conformal radiotherapy