



READ IT BEFORE YOUR PATIENTS

Intensity Modulated Radiation Therapy Alone Vs Intensity Modulated Radiation Therapy and Brachytherapy for T1-T2N0M0 Oropharyngeal Cancers: Results from A Randomized Controlled Trial

Ashwini Budrukkar, Vedang Murthy, Sheetal Kashid, Gouri Pantvaidya, Tejpal Gupta, Jai Prakash Agarwal, Monali Swain, Venkatesh Rangarajan, Sarbani Ghosh Laskar, Sadhana Kannan, Shrikant Kale, Rituraj Upreti, Prathamesh Pai

Published: 1 September 2023

DOI: <https://doi.org/10.1016/j.ijrobp.2023.08.056>

Abstract

Purpose

To compare clinical outcomes of intensity modulated radiation therapy (IMRT) alone vs IMRT+ brachytherapy (BT) in patients with T1-T2N0M0 oropharyngeal squamous cell cancers (OPSCC).

Methods and Materials

This open-label randomized controlled trial was conducted at Tata Memorial Hospital, Mumbai, India. Patients with stage I and II OPSCC were considered for IMRT to a dose of 50Gy/25#/5 weeks in phase I followed by randomization (1:1) to further treatment with IMRT (20Gy/10#/2 weeks) or BT (¹⁹²Ir high dose rate - 21Gy/7fractions/2 fractions per day). The primary endpoint of the trial was the reduction in xerostomia at 6 months evaluated using ^{99m}Tc salivary scintigraphy. Severe salivary toxicity (xerostomia) was defined as post-treatment salivary excretion fraction ratio <45%. Secondary endpoints were local control (LC), disease free survival (DFS) and overall survival (OS).

Results

Between November 2010 to February 2020, 90 patients were randomized to IMRT(N=46) alone or IMRT+BT(N=44). Eleven patients (8 residual/recurrent disease, 2 lost to follow up, 1 second primary) in the IMRT arm and 9 patients (8 residual/recurrence, 1 lost to follow up) in the BT arm were not evaluable at 6 months for the primary endpoint. At 6 months, xerostomia rates using salivary scintigraphy were 14% (5/35: 95% CI 5%-30%) in the BT arm while it was seen in 44% (14/32: 95%CI 26%-62%) in the IMRT arm (p=0.008). Physician rated RTOG grade ≥ 2 xerostomia at any time point was observed in 30% (9/30) patients in the IMRT arm and 6.7% (2/30) in the BT arm (p=0.02). At a median follow-up of 42.5 months, the 3-year LC in the IMRT arm was 56.4% (95% CI-43%-73%) while it was 66.2% (95% CI: 53%-82%) in the BT arm (P=0.24)

Conclusion

The addition of BT to IMRT for T1-T2N0M0 OPSCC results in a significant reduction in xerostomia. This strongly supports the addition of BT to IMRT in suitable cases.