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Role of high dose rate brachytherapy in early and locally advanced squamous cell carcinoma of oral cavity

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Background: The study was intended to assess the effect of high dose rate brachytherapy in early and locally advanced squamous cell carcinoma of oral cavity for local control, toxicity and functional outcome.

Materials & Methods: 125 eligible patients with mean age of 53.91 years (range 32-73 years) were included in this study from November 2008 to June 2015. Follow-up period ranged from 12 months to 84 months with median follow up period of 48 months. 68/125 patients were with early stage oral cancer (I and II) and 57/125 patients were with locally advanced stage (III and IVA). 60% had anterior 2/3rd tongue lesion, 34.4% buccal mucosa and 5.6% had lesions in the floor of mouth. Stage I (T1N0M0) patients received primary brachytherapy alone. Dose ranged from 38.5 Gy to 42 Gy (3.5 Gy/# to 3 Gy/#) twice daily with 6 hours interval between two fractions for 11 to 14 #s. 110 patients received External beam radiation alone or concurrent chemoradiation (50 Gy) wherever appropriate for their stages, chemotherapy dose cisplatin 70mg/m² were injected along with HDR interstitial brachytherapy boost (3-3.5 Gy per fraction × 6-7 fractions-twice daily).

Results: Of the 125 patients, 103/125 showed complete response (82.4%) and 22/125 (17.6%) were found to have residual tumor during follow up. 11 patients died; 4 patients died due to other causes. Two patients had sudden myocardial infarction and died. 1 patient developed sputum positive pulmonary tuberculosis after three years of post-radiotherapy period. He developed massive haemoptysis and died. 1 patient developed primary and secondary in brainstem lesions, became quadriplegic and ultimately died. 7 patients died of disease progression. Those with residual diseases on follow up (Biopsy proven) were referred to Surgical Oncology Department for salvage surgery. About 100% in stage I, 83% in stage II, 78% in stage III, 50% in stage IVA had local control. Five patients developed bleeding at time of implant catheter removal after brachytherapy treatment which was effectively managed by compression for few minutes and ice packs. None of them required surgical intervention or blood transfusion. Soft tissue necrosis developed in 7 patients and 2 patients were sent for surgical intervention. 6 patients developed osteoradionecrosis of them, 1 patient required surgery.

Conclusion: HDR interstitial brachytherapy when used either as primary treatment modality or as boost is as effective as surgery in early and locally advanced oral cavity cancers with advantage of organ preservation, better cosmetic and functional outcomes.

Biography

Parthasarathy Vedesoundaram has completed his Post-graduation (MD – Radiotherapy) at Madras Medical College, Chennai, India in the year 2003. In the year 2003, he joined the Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER), an Institution of National Importance, under Ministry of Health & Family Welfare, Government of India and worked at various levels. At present, he is working as an Additional Professor. He has published 12 papers in national and international journals.

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