

## **Chuka, R. Comparison of tooth loss between intensity modulated and non-intensity modulated radiotherapy in head and neck cancer (Poster Presentation)**

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**Objective:** To identify the dental status after Intensity Modulated Radiotherapy (IMRT) and non-IMRT (+/- surgery, +/- chemotherapy) in oropharyngeal (OP), oral cavity (O) and nasopharyngeal (NP) cancer patients.

**Design:** Retrospective cohort study employing a non-directional null hypothesis.

**Setting:** Institute for Reconstructive Sciences in Medicine (iRSM), Edmonton, Alberta.

**Patients and Methods:** Demographic and tooth loss data was obtained from patients who received IMRT or non-IMRT (+/- surgery, +/- chemotherapy) for the treatment of OP, O and NP cancer between January 2000 and January 2010 at the Institute for Reconstructive Sciences in Medicine (iRSM). The primary outcome measure was tooth loss as assessed using clinical photographs recorded over time. Secondary outcomes included patient demographics: age, gender, site and stage of disease, history of diabetes and smoking, RT dose, time after RT and salivary gland transfer. .

**Main Outcome Measures:** Differences in tooth loss between IMRT and non-IMRT for the treatment of OP, O and NP cancer, as well as demographic data.

**Results:** Eighty-six patients were eligible for this study at baseline; 44 received IMRT and 42 received non-IMRT. Twenty-four (33%) of the 86 patients had data up to two years after RT. After adjusting for baseline number of teeth, no significant differences were found between the IMRT and non-IMRT groups up to two years after RT using RM-ANCOVA ( $p=0.079$ ). There was a trend toward higher tooth loss mean scores in the non-IMRT group (5.55) compared to the IMRT group (1.07) up to two years after RT. The only significant difference observed in the patient demographic data included the site of disease.

**Conclusions:** The findings of this study revealed there were no statistically significant differences in tooth loss between RT groups up to two years after RT in OP, O and NP cancer patients. The trends in the data, however, suggest that tooth loss increased in both RT groups each year after RT with more tooth loss the second year after RT compared to baseline and one year after RT. The early findings of this study need to be viewed with caution, as data beyond three to five years as well as a larger sample size is needed to further understand the long term dental effects after advanced RT. A longer duration multisite study is in planning.

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