

**AbstractID: 12605 Title: Intensity-Modulated Radiation Therapy (IMRT) in the Treatment of Oropharyngeal Carcinoma: Clinical outcomes and relation of Parotid Gland volume with Xerostomia.**

**Purpose:** To determine the pattern of failures and relation of the parotid gland (PG) volume with xerostomia in patients treated with IMRT for squamous cell cancers of the oropharynx.

**Method and Materials:** Between January 2001- December 2006, 49 patients with oropharyngeal cancer received IMRT with curative intent at Fox Chase Cancer Center. Among these, 48 were squamous cell and 1 adenocarcinoma. The median age was 58 years (range: 41-85), 82% smokers, and 90% with stage III or IV. 85% received definitive RT (63% concurrent chemoradiotherapy, 22% RT alone) to a median dose of 70 Gy in 35 fractions and 39% (19) had neck dissection. Wilcoxon test was used to determine the correlation between PG volumes ( $V_{\text{mean}}$ ) and Xerostomia in 28 patients and Pearson's correlation coefficient to see relation between the percentage weight loss with PG volume. The mean dose to PG was 26 Gy. RTOG acute toxicity scoring was used to grade Xerostomia. Patient tumor and treatment related factors, including age, T, N stage, location of primary tumor, addition of chemotherapy, and RT doses were analyzed for outcomes and toxicities.

**Results:** The median follow up was 16 months (range: 1 – 84). The 2-year local, locoregional, distant metastases free and overall survival rates were 90%, 90%, 91% and 71% respectively with a median time to failure of 15 months. Median values for PG's were:  $V_{\text{mean}}$  14 cc (5-48), 25 cc (12-77) and RT doses were 52 Gy (26-65), 25 Gy (17-32) for ipsilateral and contralateral PG's respectively. Median percent weight loss was 10% at 7th week of treatment. Only 4% patients had grade 3 xerostomia. There was no significant correlation seen for Xerostomia with percent weight loss and/or ipsilateral ( $p=0.2$ ) or contralateral PG volumes ( $p=0.3$ ).

**Conclusion:** Use of IMRT resulted in acceptable xerostomia rates with promising locoregional control rates.