No significant association was found between inflammatory marker levels and the selected toxicity endpoints \((p>0.05\) in all cases). Figure 2 shows the distribution of cytokine levels at both time points stratified by pts who showed (label “tox”) or did not show (label “no-tox”) the selected toxicity endpoints.

**Conclusion**

RT for HNC induced a significant increase in salivary cytokine levels of IL-1β and IL-6 already after 20 Gy. Unlike some recent published results though, this preliminary analysis did not detect any association between the inflammatory marker concentration changes and the most impairing acute toxicities commonly arising throughout the treatment. Of note, collection of saliva during treatment was difficult in many cases and density of saliva collected at T1 was usually high, with this probably impacting the absolute concentration of inflammatory markers. This points out the need to develop protocols for corrections of concentrations for saliva density.

**EP-1191 Effect on local control of addition of chemotherapy to radiotherapy for T2 cancer of the hypopharynx**

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**Purpose or Objective**

A benefit from chemo-radiotherapy (CTRT) for bulky stage II hypopharyngeal squamous cell cancer (HPSCC) has proponents but limited supporting evidence. We investigate the effect on local control (LC) of the addition of chemotherapy (CT) to radiotherapy (RT) for T2 HPSCC.

**Material and Methods**

A retrospective analysis was performed of patients with T2 (node negative or positive) HPSCC receiving definitive RT or CTRT at a single academic cancer centre. Patient and disease characteristics were obtained from electronic records. Primary gross tumour volumes were calculated from CT planning scans or diagnostic imaging. LC analysis was censored at time of first failure or death. The logrank test was used for correlation between tumour volume and LC. Cox proportional hazard modelling of LC by treatment received was performed to account for competing risks.

**Results**

62 patients were identified, treated from April 2007 to July 2016. Patient demographics, treatment received and site of first failure are shown in table 1. Median follow-up in patients not experiencing failure was 25 months (range 1-107 months) and 20 months (3-85 months), and median time to first failure 12.2 months (2-58 months) and 6.4 months (3-77 months), after RT or CTRT respectively. Initial local failure occurred in 10% (3) and 39% (12) of those patients receiving CTRT or RT (\(p = 0.047\), HR = 0.272, 95% C.I. 0.075-0.982). After RT, a significant negative correlation was identified between primary tumour volume and local control (spearman rho -0.59, \(p = 0.008\)). Patients with primary tumour volumes > 8 cm\(^3\) vs ≤ 8 cm\(^3\) had significantly worse local control rates (\(p = 0.01\)) after RT.
Conclusion
In this cohort the addition of CT to RT is associated with improved LC for T2 HPSCC. Patients with larger tumours were more likely to experience local failure after RT, and for this group treatment intensification with CRTT may be of benefit, even in node negative patients. Competing risk analysis has been used to account for the risk of early distant failure or death and censure in node positive patients receiving CRTT. Moreover, local failure is known to remain the predominant site of first recurrence, and risk of local failure is known to be increased, in node positive patients after CRTT. Tumour biology or first site of failure variation between the two groups is therefore unlikely to explain the significant difference in LC identified.

Purpose or Objective
Hair loss is a common complication of brain tumor radiotherapy but has not been reported following conventional radiotherapy of nasopharyngeal carcinomas (NPC). The use of posterior fields during intensity modulated radiotherapy (IMRT) of NPCs made hair loss common. The aim of this study was to evaluate all patients treated with IMRT for NPC to determine correlation between scalp doses and hair regrowth.

Material and Methods
Twenty-one patients treated with IMRT for NPC were prospectively followed during the radiotherapy period and up to 6 months after the end of the irradiation. All patients had 7 fields irradiation including a posterior field. A simultaneous boost technique was used to deliver 69.96 Gy in 33 fractions to the nasopharynx and involved lymph nodes. The scalp was not considered as an organ at risk during radiotherapy planning. To evaluate the doses received, we have delineated the tissue between the skin and the skull taking as an upper limit 6 mm above the upper edges of the posterior field. We then reported the maximum dose (Dmax), the minimum dose (Dmin), the mean dose (Dmean), the percentage of volume receiving more than 10 Gy (V10Gy), the percentage of volume receiving more than 20 Gy (V20Gy) and the dose received by 50% of the scalp (D50%). After the end of treatment, patients were followed in consultation at 1 month, 3 months and 6 months to determine the hair regrowth. Mann-Whitney test was used to compare doses between patients with total and partial regrowth at 3 months.

Results
The median Dmax, Dmin and Dmean were 42.77 (31.86-63.98), 1.32 (0.9-1.96) and 16.11 (12.42-20.66) respectively. The median D50%, V10Gy and V20Gy were 69.07% (49.02-80.19) and 35.36% (21.25-49.5) respectively. All patients had hair loss during the treatment phase. After 1 month of the end of treatment, all patients had partial hair regrowth. At 3 months, 7 patients (33.3%) had total hair regrowth. Median Dmean, V10Gy and V20Gy for patients with total regrowth were 16.11Gy (12.48-17.67), 68.81% (49.02-74.3) and 35.36 (21.25-45.79) respectively versus 16 Gy (14.09-20.31), 72.03% (58.32-79) and 34.86% (25.19-49.5) respectively for patients with partial regrowth (p not significant in all cases). At six months, only one patients did not have complete hair regrowth (Dmean: 19.53, V10Gy: 78% and V20Gy: 48.8%).

Conclusion
During IMRT for NPC a Mean dose of 16 Gy is responsible for acute hair loss in 100% of cases. However, this loss is only transient with partial regrowth from 1 month of the end of treatment and a total regrowth at 6 months in almost all cases. The consideration of scalp as an organ at risk during treatment planning would be necessary. Since the dose limits to be respected are not reported in the literature for the irradiation of the NPC, we propose, through the results of our study, a Dmean < 16 Gy, V10Gy < 68% and V20Gy < 35%.

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Purpose or Objective
Non-cancer deaths or competing mortality (CM) in locoregionally advanced head and neck cancer (LAHNC) contribute importantly to the poor outcomes of these patients. The objective was to analyze the incidence of CM and tumor mortality (TM) in LAHNC patients and to determine possible prognostic factors.

Material and Methods
Cohort study of 292 patients with LAHNC treated in our hospital between 2005-2015 with radiotherapy (RT) in combination with systemic therapy. Nonparametric test was used to analyze the incidence of each death. A Fine and Gray regression model was used to investigate factors associated with CM and TM.

Results
Median follow-up was 60 months. Performance status, as measured by the Eastern Cooperative Oncology Group (ECOG), was 0 in 57% (n= 167) of patients. Comorbidity was classified by head and neck comorbidity index (HN-CCI). Moderate or severe grade comorbidity was seen in 18% (n=53) of cases. Most of the patients (65.5%, n=191) were treated with concurrent chemo-radiotherapy (CRT) treatment and 3D conformal RT technique was used in 74.5% (n=217).