Purpose/Objective: Nuclear EGFR has been implicated in resistance to both radiation and EGFR-inhibition. Src family kinases (SKFs) are required for translocation of EGFR to the nucleus. We investigated whether inhibition of SFK via dasatinib can enhance the effect of radiotherapy in squamous cell carcinoma (HNSCC) models.

Materials and Methods: Two HNSCC xenograft models, SCCHN153 and SCCHN202, were treated with dasatinib, radiation or both, and effects on growth delay, EGFR signaling, DNA repair, hypoxia and proliferation were investigated.

Results: Dasatinib and radiotherapy induced a significant growth delay in both HNSCC xenograft models, although to a lesser extent in SCCHN202. Dasatinib did not inhibit pAkt or pERK1/2, but did inhibit pDNA-PK. Moreover, dasatinib reduced radiation-induced DNA repair as shown by an increase of 53BP1 staining 24h after radiation. This effect on DNA repair was only observed in the cell compartment where pSKF was expressed; for SCCHN153 tumors in normoxic and hypoxic areas, for SCCHN202 tumors only in hypoxic areas. No consistent effects of dasatinib on hypoxia or proliferation were observed.

Conclusions: Dasatinib enhances the effect of radiotherapy in vivo by inhibition of radiation-induced DNA repair and is a promising way to improve outcome in HNSCC patients.

PO-0666
Plasma EBV DNA monitoring in advanced nasopharyngeal cancer patients receiving induction biochemotherapy and IMRT
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Purpose/Objective: Plasma EBV DNA monitoring is a highly effective protocol with very low toxicity in advanced NPC. Our goal was to observe the relationship between plasma EBV DNA levels and outcome in patients with NPC.

Methods and Materials: Two hundred and eighty NPC patients were enrolled. Treatment included high-dose chemotherapy with cisplatin and etoposide followed by radiotherapy. Plasma EBV DNA was monitored before, during and after treatment.

Results: Forty-five patients studied at initial staging were analyzed. Twenty-seven patients had an HPV infection and 18 patients were HPV negative. No statistically significant differences in RFS nor DSS were found according to primary site, while a marked difference in DSS (p=0.0177 at log rank test), but not in RFS, was observed between HPV positive versus HPV negative cases. Conversely, HPV status did not significantly affect any of the FDG PET metabolic parameters under examination. None of the above cited PET parameters tested in a univariate Cox regression model showed a correlation with RFS nor DSS.

Conclusions: Our results confirm the prognostic value of HPV infection in oropharyngeal cancer. On the other hand, in this retrospective study we did not find any correlation between FDG PET metabolic parameters and HPV status or survival. Prospective studies in larger series are needed to better evaluate possible correlation between HPV status and metabolic parameters.

PO-0667
Tumor volume as an essential prognostic factor for radiotherapy outcome in patients with early laryngeal cancer
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Purpose/Objective: The tumor volume (TV) is probably the most important among other prognostic factors for radiotherapy (RT) of patients with laryngeal cancer. The purpose of the study is to determine how the volume of early laryngeal cancer may influence the outcome of RT.

Materials and Methods: Between 2002 and 2006, 160 patients with T2 laryngeal squamous cell carcinoma were treated with RT in Maria Sklodowska-Curie Memorial Cancer Center and Institute of Oncology, Gliwice Branch. The group consists of 129 (80.5%) men and 31 (19.5%) women in mean age of 60 years (range 39-82 years). All of them were treated exclusively with RT to the median total dose of 68.4 Gy. The tumor was localized in glottis and supraglottis respectively in 82 (51%) and 78 (49%) patients. Median TV was 2.01 cm³ (range 0.11 - 21.64 cm³). Median hemoglobin concentration before (Hb0) and after (Hb1) RT was 14.6 and 13.2 g/dl respectively. Median body mass and body mass index before (M0, BMI0) and after RT (M1, BMI1) were 72 kg and 75.7 kg, 75 kg respectively. Survival rates were calculated by Kaplan-Meier method. Differences between survival rates were assessed by log-rank statistic. The Cox proportional hazards method was used for multivariate analyses.

Results: 5-year LC rate was 70%, 5-year OS rate was 63%. The median value of TV of locally cured patients was significantly lower than of those who locally failed (p=0.04). Median TV for supraglottic tumors was significantly higher than for glottic tumors p=0.0001. Poorly differentiated tumors (G2, G3) had significantly higher TV than G1 tumors (p=0.01). There was significant negative correlation between TV and Hb0, Hb1, M0 and M1. TV as continuous variable significantly influenced LC (p=0.01) and OS (p=0.0003). Patients with TV over 2 cm³ and those with TV over 6.7 cm³ presented almost two and over three times higher risk of death respectively. In multivariate analysis both age (p=0.03) and TV (p=0.01) remained significantly related to LC. Age (p=0.0005), BMI0 (p=0.005) and TV (p=0.0001) remained significantly related to OS.

Conclusions: TV significantly changes the prognosis of RT outcome for patients with early laryngeal cancer. Due to the significant relation with other factors, TV should be considered during the choice of optimal treatment for such patients.