CD4(+) but not CD8(+) lymphocytes in peripheral blood of lung cancer patients (p<0.05). We have also observed higher levels of the T-bet(+) and ROR-γt(+) CD4(+) lymphocytes with decreased level of the FoxP3 (+) CD4(+) cells (p<0.05), and accumulation of GATA-3(+) CD4(+) lymphocytes specific for TH2 immune response (p<0.05).

Conclusions: In our study, 8.3% of patients had metastases 15 mm around the hippocampus, or less. Hence, a 15-mm margin around the hippocampus for conformal avoidance whole brain radiotherapy represents an unacceptable risk of disease progression after hippocampal avoidance during prophylactic whole-brain radiotherapy for small cell lung cancer.

PD-0426
A clinical model predicting severe esophagitis in individual SCLC patients treated with chemo-radiotherapy
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Purpose/Objective: Severe radiation induced esophagitis is a frequent side-effect of concurrent accelerated chemoradiation for small cell lung cancer (SCLC). Pre-treatment predictive models can facilitate identifying high-risk patients to provide intensive nutritional support or prophylactic placement of a naso-gastric feeding tube.

Materials and Methods: We analyzed 240 consecutive patients with stage I-II SCLC from our prospective database, referred between December 2004 and March 2014 for concurrent platinum-etoposide and accelerated radiotherapy. All patients were FDG-PET-staged and received 45 Gy in 1.5 Gy fractions twice daily to the tumor and PET-positive or pathologically proven lymph nodes. 97% of patients received concurrent chemo-radiotherapy as planned, the remaining 3% of patients were treated sequentially. A total of 47 patients (20%) experienced dysphagia grade ≥3 (CTCAE 4.0).

A set of clinical (e.g. cT-stage, cN-stage, age, gender, WHO-PS, smoking status,...), biochemical (platelet count, hemoglobin and LDH at diagnosis) and radiotherapy planning parameters (e.g. mean (Dmean) and maximal dose (Dmax) to the esophagus, GTV,...) of potential relevance for esophagitis was retrieved for each patient.

We developed three distinct prediction models for dysphagia grade ≥3:
Model 1: based on classical clinical / biochemical factors only.
Model 2: based on the same set of parameters as Model 1, but replacing the classical nodal parameters (cN-stage, cN3-stage) investigated for model 1 by the number of treated nodal stations with close proximity to the esophagus (’High Risk stations’ : 1L, 1R, 3P, 4L, 7, 8 and 9).
Model 3: based on both classical clinical / biochemical and planning parameters.

A bootstrap approach was used to assess how many variables should be included in the models: 2 or 3 variables for model 1, 3 for model 2 and 4 for model 3.

For each model individually the strongest combination of parameters from the data-set was composed using a backward selection procedure based on Akaike’s Information Criterion (AIC).

Results: For Model 1 the following variables were statistically significant: cT4 (yes/no), platelet count and gender. cN-stage was non-significant.
did not contribute significantly and was thus not incorporated.
Model 2 incorporated the number of "High Risk nodal stations" (0, 1-2 or ≥3), gender and cT4. Model 3 comprised esophageal Dmean and Dmax, gender and total GTV.
Model 1 had an AUC of 0.62, which decreased to 0.58 after correction for overfitting. Model 2 yielded an AUC of 0.73 (corrected for overfitting: AUC=0.70) and model 3 had an AUC of 0.69 (corrected for overfitting: 0.67).
In a secondary analysis, the number of nodal stations close to the esophagus correlated with esophageal Dmean and Dmax: 0.53 (p<0.001) and 0.40 (p<0.001), respectively.
Conclusions: In SCLC patients referred for treatment with accelerated concurrent chemoradiation, a predictive model for esophagitis grade ≥2 using only clinical variables (gender, number of nodal stations close to the esophagus and cT4-stage) performs at least as well as a model incorporating planning parameters. This allows clinicians to directly identify high-risk patients. External validation is ongoing.

PD-0427
Acute esophagitis for patients with Local-regional Advanced NSCLC treated with concurrent chemoradiotherapy
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Purpose/Objective: Esophagitis are one of the acute treatment related toxicities to definitive radiotherapy for NSCLC. Most current researches about the risk factors for acute esophagitis are based on 3DCRT. The purpose of this study was to estimate the dose-effect relationship between esophagitis and clinical and dosimetric parameters in the patients with local advanced NSCLC receiving IMRT and concomitant chemotherapy (CCT).

Materials and Methods: Between 2009 and 2013, 117 patients with stages IIB-IIIB NSCLC enrolled in the multi institution clinical trial NARLAL. All patients were treated with 2 cycles of induction chemotherapy followed by IMRT and CCT (fixed dose of vinorelbine 50 mg three times per week). The maximal esophagitis grade was prospectively scored using the Common Toxicity Criteria 3.0. Clinical and dosimetric variables were analyzed for the correlation with grade ≥2 esophagitis though multivariable logistic regression. The optimal dose metrics were chosen using Akaike Information Criterion (AIC). All models included one dose position parameter, one dosimetric parameter, gender, and institution. Dose position was defined as the average relative position (zero at start of esophagus and one at the end) irradiated above a certain dose. The dose variable was either maximum dose, mean dose, the physical length of esophagus irradiated above a specific dose (Lx), or the relative volume of esophagus irradiated above a specified dose (Vx). To validate the impact of the fixed dose of vinorelbine, the body surface area was also tested within the models. Data are those collected July 2014 and will be updated.

Results: Grade 1 esophagitis was experienced by 50 (43%), grade 2 by 30 (26%), and grade 3 by 10 (8%) patients, respectively. The dose parameter in the two models with lowest AIC was the relative volume irradiated above 40 Gy (V40) (OR=2.39 per additional 10% volume, p=0.001) or length of esophagus irradiated above 40 Gy (L40) (OR=4.76 per additional 5 cm, p=0.001). The dose position parameter for these two models were the average position of esophagus irradiated above 20 Gy (P20)(OR=0.37 in V40 Model and 0.45 in L40 model per 0.1 relative unit, p=0.002 and 0.011), thus irradiation of the upper part of esophagus were more toxic than the lower part. The gender was highly significant in both models (OR=11.99 in V40 model and 12.45 in L40 model, p<0.001) with the female gender experiencing more toxicity. Body surface area was not significant in a multivariable analysis neither together with the gender variable, nor within the two genders separately.

Conclusions: V40 and L40 were the most effective dosimetric predictors of grade 2 or greater acute esophagitis in NSCLC patients treated with IMRT and CCT. The position of irradiation region of the esophagus showed also to be significantly correlated with acute esophagitis. The high OR for gender could be somewhat confounded by the body surface area. However, the analyses did not support a confounding effect.

PD-0428
Radiation pneumonitis with stereotactic body radiotherapy: effects of angiotensin converting enzyme inhibitors
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Purpose/Objective: Angiotensin converting enzyme inhibitors (ACEi) and angiotensin receptor blockers (ARBs) have been shown to decrease the incidence of symptomatic radiation pneumonitis (RP) in both the pre-clinical and clinical setting. Previously reported outcomes, however, have primarily been in the setting of conventionally fractionated radiotherapy; similar effects have yet to be established in lung stereotactic body radiotherapy (SBRT). The purpose of this study was to examine the effect of using an ACEi/ARBs during SBRT on the incidence of RP.

Materials and Methods: 321 patients who received LINAC-based lung SBRT from January 2008 to June 2013 for early stage NSCLC or oligometastases of the lung were identified in a prospectively maintained institutional database. Patients who received previous thoracic radiation therapy and/or lung surgery were excluded. Overall survival (OS) was calculated using Kaplan-Meier method. Pulmonary toxicity was assessed using the Common Terminology Criteria for Adverse Events, v4.03. Statistical comparisons utilized univariate and multivariate Cox regression to evaluate the impact of patient factors as well as dose-volume histogram parameters on the incidence of symptomatic, grade 2 or greater, RP.

Results: Median follow up time was 13.9 months. Median age was 74 years (range, 47-90). Median radiation dose was 54 Gy (range, 45-60) with the median number of fractions being 3 (range, 1-30). The median volume of normal lung that received 20 Gy (V20) was 5.5% (range, 1-30). 64 patients had a centrally located tumor less than 2 cm from the bronchopulmonary tree (19.9%). Two year actuarial OS was 57.1%. 132 patients were using an ACEi/ARBs at the time of receiving SBRT (41.1%); 98 patients were using an ACEi (30.5%). Overall, 17 patients had symptomatic RP (5.3%). There was no difference in the incidence of RP with