specific to tumor, because several were also expressed in normal primary bronchial cell cultures. Three of the 10 new variants were frame shifts and the remainder introduced termination codons. We conclude that wild type EGFR is the most frequently expressed RNA species in NSCLC. In addition, many previously undescribed EGFR variants are present at variable copy number but EGFRvIII is rare if it exists at all. The region spanning EGFR exon 1-8 may be genetically or epigenetically unstable.

784 POSTER

Increased Tumor Control Probability (TCP) and radiation dose escalation by FDG-PET planning of patients with N2/N3 M0 non-small cell lung cancer (NSCLC): A modeling study.

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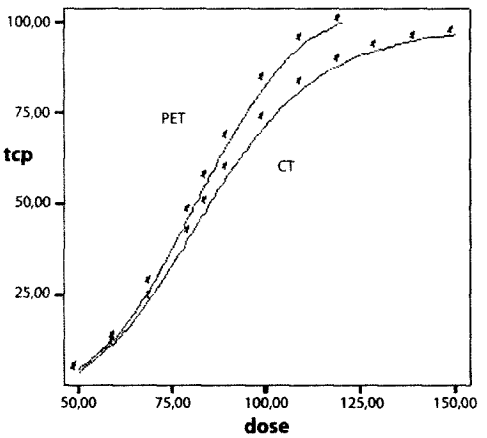
Purpose: To evaluate the feasibility of radiation dose escalation by incorporating FDG-PET scan data in radiotherapy planning of N2/N3 NSCLC and to estimate the resulting gain in local tumor control.

Methods and Materials: 21 consecutive patients with CT stage N2/N3 M0 NSCLC were studied. For each patient two 3D conformal treatment plans were made: one with a *CT* based PTV and one with a *PET-CT* based PTV. Dose and volume parameters predictive for lung and esophagus toxicity were analyzed for comparison between both plans. For each patient, radiation dose escalation for CT versus PET-CT PTV was calculated based on constraints for the lung, the esophagus and the spinal cord. The Tumor Control Probability (TCP) was calculated for each plan. The dose response curves were modeled based on the data of Martel et al. (Lung Cancer 24 (1999) 31-37) and with allowance for the reduction of geographical misses with CT-PET based treatment planning.

Results: Using PET-CT based PTV for treatment planning resulted in an absolute reduction of geographical miss of 14%. This led to a steeper TCP curve and therefore the possibility of achieving local control at lower doses (figure).



All lung and esophageal dose-volume parameters were significantly improved for CT-PET planning, allowing dose escalation. Taking lung, esophageal and spinal cord constraints into account and using *standard* 3D *planning*, there was an increase of TCP using PET-CT planning rather than CT planning (table).

Constraint	tcp-ct (%)	sem	tcp-pet-ct (%)	sem	p*
All	14.16	5.58	22.77	7.13	0.053
Lung	50.37	8.45	58.05	8.82	0.005
Esophagus	25.17	7.16	46.46	10.09	0.005
Myelum	25.36	6.99	37.55	8.55	0.041

Conclusions: Integrating PET scan data in radiotherapy treatment planning of N2/N3 NSCLC patients increased TCP even with standard 3D planning. Moreover, inclusion of PET information facilitated dose escalation in most cases.

785 POSTER

The value of the expression of thyroid transcription factor-1 (TTF-1) in malignant pleural effusion smears for distinguishing primary from metastatic lung carcinomas

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Background: Thyroid transcription factor-1 (TTF-1) is expressed in the epithelium of the lung and is essential for lung morphogenesis. The aim of this study was to evaluate the expression of TTF-1 in pleural effusion for distinguishing between tumours of lung and non-lung origin.

Material: Forty-two (42) effusion smears were studied from patients with malignant diseases (20 lung adenoCa, 8 small cell lung carcinomas, 2 squamous cell carcinomas, 5 ovarian carcinomas and 7 breast carcinomas). An immunocytochemical method was performed with the use of anti TTF-1 antigen.

Results: Positive immunoreactivity of TTF-1 was observed for lung adenocarcinoma (55%) and small cell carcinomas (62.5%). No or very low reaction was observed for all other carcinomas.

Constraint	tcp-ct(%)	sem	tcp-pet-ct (%)	sem	p*
All	14.16	5.58	22.77	7.13	0.053
Lung	50.37	8.45	58.05	8.82	0.005
Esophagus	25.17	7.16	46.46	10.09	0.005
Myelum	25.36	6.99	37.55	8.55	0.041

*2-tailed p-value from paired t-test

Conclusions: TTF-1 is a specific marker for primary lung adeno- and small cell carcinomas. Furthermore is a useful marker for the differential diagnosis between primary and metastatic adenocarcinomas of the lungs.

786 POSTER

Intratumoral homogeneity of gelatinolytic activity in resected lung adenocarcinoma

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Background: Matrix metalloproteinase-2 (MMP-2) is involved in invasion and metastasis of various malignant tumors. There are only a few reports investigating the relationship between tumor MMP-2 activity and clinicopathological features or intratumoral distribution of MMP-2 activity in lung. The aim of this study is to light up the characteristics of operable lung adenocarcinoma patients with high MMP-2 activity and intratumoral heterogeneity of MMP-2 activity.

Material and methods: A total of 70 consecutive primary lung adenocarcinoma patients operated on at National Cancer Center Hospital East were used in the study. MMP2 activity of each carcinoma tissues and the corresponding normal lung tissues was investigated by gelatin zymograpy and MMP-2 activation ratio (active MMP-2/total MMP-2) was measured. The MMP-2 activation ratio was compared with clinicopathological factors. In 24 cases, MMP-2 activity was examined in both central and peripheral portion of the tumor separately. Localization of gelatinolytic activity on tissue sections was examined by film in situ zymography (FIZ).

Results: Lung adenocarcinoma tissues of male and smokers possessed significantly higher MMP-2 activation rate than those of female and never smokers. In clinicopathological factors, lymph node involvement, vascular invasion, nuclear atypia and scar grade were significantly correlated with high MMP-2 activation rate in carcinoma tissues. MMP-2 activation ratio of central and peripheral area was significantly correlated ($r=0.860$; $p<0.0001$). These data and results from FIZ demonstrated the homogenous activation of MMP-2 regardless of tumor invasive and non-invasive sites.

Conclusions: This study clearly showed that MMP-2 activation is related to invasive phenotypes, but among the tumor with high MMP-2 activity, high MMP-2 activation is observed even in non-invasive area of the tumor.