Conclusions: The most common SUV descriptors as well as the volume of the involved lymph nodes of NSCLC patients are significant prognostic factors for overall survival for NSCLC. Likelihood of a worse prognosis increases with an increase of the mean SUV of the nodes. This is consistent with our hypothesis that there is more PET-related prognostic information in the nodes compared to the primary tumor.

OC-0206
Dose-response modelling in SBRT for stage I NSCLC and pulmonary metastases based on a multi-institutional database

M. Guckenberger1, R.J. Klement2, H. Huflage3, N. Andratschke4, O. Black5, K. Dieckmann6, M. Duma7, U. Nestle8, M. Nevinny-Stickel9, A. Wittig10, F. Sterzing11

1University Hospital Zürich, Department of Radiation Oncology, Zurich, Switzerland
2Leopoldina Hospital, Department of Radiotherapy and Radiation Oncology, Schweinfurt, Germany
3University of Wuerzburg, Department of Radiotherapy and Radiation Oncology, Wuerzburg, Germany
4University Hospital Rostock, Department of Radiotherapy and Radiation Oncology, Rostock, Germany
5University Hospital Rostock, Saphir Radiochirurgie Zentrum Norddeutschland, Güstow, Germany
6Allgemeines Krankenhaus Wien, Department of Radiation Oncology, Vienna, Austria
7Technical University Munich, Department of Radiation Oncology, Munich, Germany
8University Hospital Freiburg, Department of Radiation Oncology, Freiburg, Germany
9University Hospital Innsbruck, Department of Radiation Oncology, Innsbruck, Austria
10Philips-University Marburg, Department of Radiation Oncology, Marburg, Germany
11University Hospital Heidelberg, Department of Radiation Oncology, Heidelberg, Germany

Purpose/Objective: Stereotactic body radiotherapy (SBRT) is the treatment of choice in medically inoperable patients with stage I NSCLC. Today, SBRT is used with increasing frequency for pulmonary metastases: however, dose prescriptions are adapted from primary NSCLC experiences without their validation for metastases. It was therefore the aim of this study to analyze a potential dose-effect relationship for local tumor control in SBRT for pulmonary metastases and compare results to SBRT for stage I NSCLC.

Materials and Methods: This retrospective multi-institutional study is based on 582 and 964 patients treated with SBRT for stage I NSCLC and pulmonary metastases at 13 centres; only patients with follow-up >6 months were analyzed resulting in 399 and 525 patients, respectively. Patients with primary NSCLC and pulmonary metastases were treated with a median of 3 (range 1-17) and 3 (1-12) fractions to a total dose of 60Gy (range 19-86) and 55Gy (16-80) (maximum PTV dose at isocenter; PTV-max), respectively. BED was calculated using the LQ-model with α/β=10Gy resulting in PTV-max doses of 168Gy (48-263) and 138Gy (24-288) BED for primary NSCLC and metastases, respectively. Dose-effect models were compared using the second-order bias corrected Akaike Information Criterion (AICc). We used Bayesian logistic regression to estimate regression parameters and their standard errors.

Results: Median tumor diameter was 2.6cm (0.8-4.8) and 1.9cm (0.4-9.0) for patients with primary NSCLC and pulmonary metastases, respectively (p=0.001, Wilcoxon rank sum test); tumor diameter was lacking in 47% (primary NSCLC) and 12% (pulmonary metastases) of the patients. Most frequent histologies for pulmonary metastases were NSCLC (28%), colorectal (25%) and renal cell cancer (11%). Median follow-up was 19 months (6-139; primary NSCLC) and 16 months (6-125; pulmonary metastases) (p=0.15). For pulmonary metastases, a strong dose response relationship was observed (evidence ratio 98.6), but only for PTV-max BED and not for the PTV encompassing BED; the latter is in contrast to findings from SBRT for primary NSCLC, where a strong evidence for a minimum PTV dose-effect was observed (Guckenberger et al. Radiother Oncol 2013). Overall, there was no difference in the dose response relationship between primary NSCLC and pulmonary metastases: the PTV-max BED required for 90% TCP was 176±17Gy and 167±18 Gy for primary NSCLC and pulmonary metastases, respectively.

Conclusions: A significant dose-response relationship was observed in SBRT for pulmonary metastases with local tumor control as endpoint. The observed dose response relationship was not different to primary stage I NSCLC. We will, however, further investigate the influence of histology and tumor size on the dose-effect relationship in pulmonary metastases.

Symposium: Elderly should be treated as their younger counterparts

SP-0207
The role of postoperative radiotherapy in the older patient: impact on local control and quality of life

I. Kunkler1
1Western General Hospital Edinburgh Cancer Centre, Department of Radiation Oncology, Edinburgh, United Kingdom

The incidence of breast cancer is rising in the elderly, reflecting the age related incidence of the disease and, in the UK, the impact of the breast screening programme. The evidence base for the role of postoperative radiotherapy (RT) after breast conserving surgery in older patients has been limited, in part reflecting the historical exclusion of the elderly from randomised trials. Extrapolating outcomes from younger to older patients may not be valid. In older patients there are also competing risks of non breast cancer mortality. The Oxford overview (1) of over 10,000 women treated with breast conserving surgery with or without adjuvant radiotherapy shows that RT halves the risk of first recurrence (most of which are local). However the absolute reduction in risk of recurrence from RT is very modest in older good prognosis patients. The main source of level 1 evidence in older patients is the CALGB 9343 trial (1) which randomised over 700 women >/= 70 years with T1, N0,M0 hormone receptor positive breast cancer treated by breast conserving...