Conclusion: Obtained results do not permit to form robust conclusion concerning role of RT in the management of thymic tumors patient. Besides clear, unquestionable bad prognostic factors as bad PS, low differentiation, presence of local relapse, lung fibrosis, second malignancy or distant metastases, we found only one more - male sex, decreasing LC.

EP-1215

Do higher doses of palliative radiotherapy still prolong survival in stage III/IV NSCLC?

A. Price[1], K. MacLennan[1], S. Campbell[1], S. Erridge[1], F. Little[1], T. Evans[1]
[1]*Western General Hospital- Edinburgh Cancer Centre, Edinburgh Cancer Centre, Edinburgh, United Kingdom*

Purpose or Objective: In a UK Medical Research Council trial carried out before the widespread use of chemotherapy or CT-PET, palliative thoracic radiotherapy delivering 39 Gy in 13 daily fractions conferred an overall survival (OS) benefit when compared to 17 Gy in 2 weekly fractions in good performance status patients with radically treatable NSCLC. To determine whether this benefit persisted with contemporary standards of staging and systemic therapy, we studied the outcomes of patients with locally advanced/metastatic NSCLC receiving palliative radiotherapy in our centre over a 2 year period.

Material and Methods: The case records of 176 patients who received palliative thoracic radiotherapy in 2011 or 2012 were reviewed retrospectively. Data collected included age, stage, performance status, dose/fractionation, additional treatments and survival.

Results: 36 patients received high dose thoracic radiotherapy (HDTRT, 36-40 Gy in 12-15 fractions) and 140 received a lower dose (LDTRT), 20 Gy in 5 fractions. Median OS in the HDTRT group was 8.5 months and 5.5 months in the LDTRT group (hazard ratio 0.6, p <0.01). 12 patients received chemotherapy and HDTRT with median OS 12m *vs* 7m in the 25 patients receiving chemotherapy and LDTRT. In those who received HDTRT alone, median OS was 6.5m *vs* 4m for LDTRT alone. In patients with stage II-III disease median OS was 9.6m *vs* 6m for LDTRT. In those with stage IV disease, median OS was 8m for HDTRT *vs* 5m for LDTRT. In patients with performance status 0-2 median OS was 9m for HDTRT *vs* 6m for LDTRT, while in the two patients with performance status 3 who were irradiated it was 1m with HDTRT *vs* 3m with LDTRT.

Conclusion: This audit of contemporary practice suggests that the survival benefit of high dose palliative radiotherapy reported by Macbeth (Clin Oncol (R Coll Radiol). 1996;8:167-75) persists with modern staging and systemic therapy practices, and may also extend to patients with small volume stage IV disease excluded from that trial, but not those with poor performance status.

EP-1216

Differential diagnosis between toxicity and recurrence after SBRT in early stage inoperable NSCLC

R. Frakulli[1], F. Salvi[2], D. Balestrini[2], M. Palombarini[3], S. Cammelli[1], G. Macchia[4], M. Zompatori[5], A.G. Morganti[1], G. Frezza[2]
[1]*Radiation Oncology Center- Sant'Orsola-Malpighi Hospital-University of Bologna, Department of Experimental-Diagnostic and Specialty Medicine - DIMES, Bologna, Italy*
[2]*Ospedale Bellaria, Radiotherapy Department, Bologna, Italy*
[3]*Ospedale Bellaria, Medical Physics Unit, Bologna, Italy*
[4]*Fondazione di Ricerca e Cura "Giovanni Paolo II"- Catholic University of Sacred Heart, Radiotherapy Unit, Campobasso, Italy*
[5]*Sant'Orsola-Malpighi Hospital- University of Bologna, Radiology Department, Bologna, Italy*

Purpose or Objective: SBRT is the standard treatment of early stage inoperable NSCLC. Parenchymal changes (PC) after SBRT make it difficult the differential diagnosis between treatment effects and disease recurrence. The purpose of our study was to identify the radiographic features (High Risk Features: HRFS) with high specificity (SP) and sensitivity (SE) for early detection of recurrence.

Material and Methods: We retrospectively evaluated patients treated with SBRT for inoperable early stage NSCLC. Median dose was 50 Gy in 5 fractions (range, 45-60 Gy /3-12 fractions) prescribed to 80% isodose. All patients underwent chest computed tomography (CT) before SBRT and after 3, 6, 12 months (thereafter annually). Using a chest CT scan radiological aspects according to Huang et al. classification (Huang et al., Radiother Oncol 2013;109:51-57) were evaluated. 18F FDG-PET was used in case of suspected tumor recurrence.

Results: Forty-five patients were included, 34 males and 11 females; mean age was 75.7 years (range, 60-86 years); 77.8% of patients had stage IA disease and 22.2% stage IB with a mean follow-up of 21 months, local control was 69%. Benign acute CT changes (up to 6 months after SBRT) were observed in 34 patients (patchy consolidation was the most frequent) and late changes (after 6 months) in 44 patients (mass-like fibrosis was the most frequent). HRFs were identified in 20 patients, enlarging opacity at primary site in 9 patients, enlargement after 12 months in 20 patients, bulging margin in 7 patients, disappearance of linear margin in 2 patients, loss of air bronchogram in 18 patients and cranial-caudal growth in 15 patients. These HRFs were individually significantly associated with local recurrence of the disease. The better predictor of relapse was enlargement opacity at 12 months (p <0.001) with SE: 84.6% and SP: 71.8%. The presence of > 1 HRFS demonstrated a higher SE (93.3%) (p <0.02) with SP: 59.4%.

Conclusion: Detection of HRFS is predictive of relapse with a SE increasing with the number of observed HRFs. This observation allows to better define the diagnostic algorithm in follow-up, suggesting to perform further exams only in patients with > 1 HRFS.

EP-1217

Effect of overall treatment time in dose escalatation for radiotherapy of NSCLC. BED-time analysis

J. Cabrera[1], A. Torres[1], A. Ruiz[1], A. Corbacho[1], M.A. Gonzalez[1], J. Quiros[1], F. Ropero[1], J. Muñoz[1]
[1]*Hospital Infanta Cristina, Radiation Oncology, Badajoz, Spain*

Purpose or Objective: Because there is a positive correlation between radiation dose and local control (LC) in non-small cell lung cancer (NSCLC) although with no impact on overall survival (OS) our institutional protocol allowed moderate radiotherapy dose escalation up to 70 - 74 Gy (BED: 84 - 88.8 Gy) on the standard 60-66 Gy (BED: 72 - 79.2 Gy) providing that organs-at-risk are keep in tolerance. This retrospective study aims to assess the impact of dose escalation in clinical outcome when the duration of radiotherapy is taken in to account through the use of BED model corrected by time (tBED)

Material and Methods: 78 consecutively patients with unresectable NSCLC were retrospectively analyzed. All were PET-CT staged and were treated with platinum-based chemotherapy (either concomitant or sequential) and 3DCRT. Two groups were compared according to prescribed dose level: Standard Dose Group (SD) n = 38 those receiving nominal prescribed BED ≤ 79.2 Gy and Escalated Dose Group (ED) n = 40 those receiving > nominal prescribed BED >79.2 Gy. For both groups actual administered dose corrected for the duration of treatment (tBED) was calculated using the formula *[tBED (Gy) = n d (1+d/ α/β) – KT] (Sinclair, IJROBP 1999. 44:381)* Multivariate Cox regression analysis was performed to identify significant predictors of OS, Disease Free Survival (DFS) and Thoracic Progression Free Survival (TPFS). For purposes of comparison a nominal prescribed dose of 60 Gy @2Gy in 39 days have a tBED = 44, 7 Gy.