Results: For the entire group median follow-up and overall survival (OS) were: 17.7 months (mo) (IQR: 10.3-27.9) and 19.1 mo (95% CI 13.9-24.3). Median tBED for entire group was 45.8 Gy (IQR 40.5-49.9) BED in SD and ED group were 42.2 (IQR 37.4-45.2) and 48.9 Gy (IQR 45.7-49.7). Univariate analysis by groups: Actuarial median OS: SD vs. ED was: 17 mo (95% CI 13.6-20.3) vs. 22.3 mo (95% CI 9.6-35) p = 0.18. Actuarial median DFS SD vs. ED was: 8.3 (95% CI 7.2-9.3) vs. 12.8 mo (95% CI 3-22.7) p = 0.009. Actuarial median TPFS (mo) SD vs. ED was: 8.4 (95% CI 7.2-9.5) vs. 21.8 (95% CI 13.2-30.5) p = 0.003.

On multivariate analysis significant predictors for OS, DFS and TPFS are depicted on table: radiotherapy dose was found not to be a significant factor.

<table>
<thead>
<tr>
<th>Variable</th>
<th>OS, HR (95% CI)</th>
<th>DFS, HR (95% CI)</th>
<th>TPFS, HR (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS (0 vs. 1)</td>
<td>1.00 (1.00-1.00)</td>
<td>1.00 (1.00-1.00)</td>
<td>1.00 (1.00-1.00)</td>
</tr>
<tr>
<td>Bronchoscopy (+/-)</td>
<td>1.00 (1.00-1.00)</td>
<td>1.00 (1.00-1.00)</td>
<td>1.00 (1.00-1.00)</td>
</tr>
<tr>
<td>Weight loss (%/year)</td>
<td>1.00 (1.00-1.00)</td>
<td>1.00 (1.00-1.00)</td>
<td>1.00 (1.00-1.00)</td>
</tr>
</tbody>
</table>

Conclusion: On univariate analysis, but not on multivariate, age associated statistically significant better DFS and TPFS and non-statistically significant better OS, even when adjusted to overall treatment time. Due to treatment time delays SD group received a suboptimal dose of radiotherapy and ED group received a tBED which virtually match nominal 60 Gy. Our data in agreement with those resulting from randomized trials strongly support that 60 Gy @2 Gy with adjusted to overall treatment time. Due to treatment time delays SD group received a suboptimal dose of radiotherapy and ED group received a tBED which virtually match nominal 60 Gy. Our data in agreement with those resulting from randomized trials strongly support that 60 Gy @2 Gy with stringent control of time delays is the gold standard in the radiotherapy for NSCLC.

EP-1218
Salvage radiotherapy for locoregionally recurrent non-small cell lung cancer after resection
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Purpose or Objective: Radiotherapy with or without chemotherapy is commonly used for isolated loco-regional recurrence of non-small cell lung cancer (NSCLC) after initial surgery. This study was undertaken to evaluate the outcomes and complications of curative radiotherapy for locoregionally recurrent NSCLC.

Material and Methods: Medical records of 57 patients who received curative radiotherapy for locoregionally recurrent NSCLC without distant metastasis after surgery from 2004 to 2014 were retrospectively reviewed. At the time of recurrence, the median age was 67 years (range 34-81 years), and most patients (84.2%) had good ECOG performance status. All patients initially received a curative intent operation, and the median disease-free interval was 14 months. For locoregionally recurrent lung cancer, forty-two patients were treated with concurrent chemoradiation therapy (CCRT), and fifteen patients with radiotherapy alone. Radiation dose ranged from 45 Gy to 70 Gy (median 66 Gy) by a three-dimensional conformal technique. Lung function change after radiotherapy was evaluated by comparing pulmonary function tests before and after radiotherapy.

Results: Median follow-up after recurrence was 20 months. Six patients showed a complete response, and thirty-nine patients showed a partial response. The median survival was 30 months. Two-year locoregional recurrence-free survival (LRFS), distant metastasis-free survival (DMFS), disease-free survival (DFS) and overall survival (OS) rate were 46.1%, 37.2%, 31.9%, and 65.1%, respectively. Eleven patients showed disease progression within the radiation field after radiotherapy. Pulmonary function decreased meaningfully after radiotherapy, and radiation pneumonitis of any grade was seen in 19 patients. In the multivariate analysis, age under 70 years was associated with good OS (p = 0.047); concurrent chemoradiation therapy with good OS (p = 0.014), and DFS (p = 0.003); and single-station recurrence with good OS (p = 0.01), DFS (p = 0.022), and LRFS (p = 0.01).

Conclusion: Patients who have locoregionally recurrent NSCLC showed favorable survival outcomes with salvage radiotherapy. However, lung function should be carefully evaluated before and after radiotherapy. Young age, single site recurrence, and the use of CCRT were good prognostic factors of overall survival. In patients with good prognostic factors and suitable for curative radiotherapy, CCRT could be considered to improve treatment outcomes.

EP-1219
Utilisation of new functional imaging in NSCLC radiotherapy: Can we use DW-MRI?
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Purpose or Objective: Precise delineation of primary lung cancer mass and involved mediastinal LN is very important requirement in order to improve radiotherapy outcome and minimize treatment toxicity. Diffusion weighted MRI (DW-MRI) is a recently introduced functional imaging modality, having higher sensitivity and specificity than CT to differentiate lung cancer from post-obstructive lobar collapse. And also able to pinpoint lymph nodes with and without metastasis. The apparent diffusion coefficient (ADC) is the quantitative parameter of DW-MRI with cut off value 1.4 x 103 mm2/s which can be used as a good tool to contour Target volumes in lung cancer. The aim is to study the feasibility of using the images of DW-MRI and data of ADC map for radiotherapy contouring purposes.

Material and Methods: Twenty cases of newly diagnosed lung cancer patients underwent CT chest with contrast and respiratory gatted DW-MRI with b value of 0, 500, 1000s/mms. Both studies were obtained in the same position, respiratory phase and slice thickness (5mm) in order to allow proper image fusion. For each patient, we’ve delineated GTV for primary lung mass and GTV-LN for involved mediastinal LN on both CT scan (guided by size) and DW-MRI (guided by T2W and the ADC map) together with delineation of the nearby risk structures. Auto margins were taken for the CTV and the PTV. The impact of using MRI on stage and different treated volumes was assessed and compared.
Results: The main result was the reduction in primary and nodal volumes due to better definition of lung mass and nearby lung collapse, the latter could be easily defined in 14 cases on the DW-MRI vs. 7 cases only by CT scans (P=0.016). Median GTV total (sum of 1ry and nodal GTV), on MRI Diffusion compared to that on the CT scan was 354 and 386 cm³ respectively (P= 0.009). In 15 cases, a mean decrease in the GTV total of 34% ± 56% (median, 9%; range, 0.2- 32.5%) by using DW-MRI. only in three other cases a mean increase in the GTV total of 12.7% ±14.9% (median, 9.7%; range, 0.4-22%). was found. The median PTVs on the CT scans vs. the MRI Diffusion were 416.3 (range, 493-2965 cm³) & 1419 (range, 542-3158 cm³) respectively which was statistically non significant (P= 0.391).

Conclusion: This pilot prospective study concluded that DW-MRI as a functional image can aid in proper definition and delineation of the target volumes after fusion of DWI and the CT images. GTV Total decreased in most cases due to exclusion of collapse, consolidation, reactionary and inflammatory LN, however GTV total was increased in 3/20 patients due to better nodal detection and better visualization of borders adjacent to the mediastinum and chest wall. DW MRI could be a future good tool for proper staging and guidance of radiotherapy in NSCLC cases.

Purpose or Objective: Increasing the radiotherapy dose can result in improved local control for non-small-cell lung cancer (NSCLC) and can thereby improve survival. This can be compromised by accelerated repopulation of tumour cells during radiotherapy. Accelerated hypofractionated radiotherapy (AHRT) for NSCLC can thereby improve survival. This can be compromised by accelerated repopulation of tumour cells during radiotherapy. Accelerated hypofractionated radiotherapy (AHRT) can expose tumors to a high dose of radiation in a short period of time. We have employed this approach in two groups of NSCLC: 1) early stage NSCLC patients who cannot tolerate the SABR treatment process (for example, extended periods in the treatment position) or who cannot travel to a centre with SABR; and 2) stage III NSCLC unfit for concurrent chemotherapy.

Material and Methods: 76 patients (46 stage I-II and 30 local advanced NSCLC) were included. All patients had FDG-PET scan. Only the primary tumour and the positive mediastinal areas on the pre-treatment FDG-PET scan were irradiated. Mean age was 77.9 ± 7.9 years. The performance status (PS) was > 2 in 50% of cases. The radiotherapy was delivered in 2.75 Gy fractions, once daily to a total dose of 66 Gy (BED10: 84 Gy). Sequential chemotherapy (mainly platinum and vinorelbine) was administered in 95% of stage III patients. Acute/late toxicity was evaluated using the RTOG criteria.

Results: After a mean follow-up of 2 years, the median overall survival (OS) and cause specific survival (CSS) were 23 and 54 months, respectively. On multivariate Cox regression analysis, PS >2 was an independent risk factor for OS (p=0.0001) and CSS (p=0.0001). The major acute adverse reactions were grade 2 dermatitis (18%), grade 2 esophagitis (10%) and grade 1 pneumonitis (26%). There were 34 patients with grade 1 late pneumonitis.