Results: A multivariate model that was optimized with stepwise backward regression indicated that tree parameters: clinical N stage 2 or 3 (RR=1.85), high ESR (RR=1.74) and high platelet/hemoglobin ratio (RR=1.67) independently and negatively influenced overall survival. The actuarial 3-year overall survival was 27%. Patients with no risk features had 3-year OS of 60%, those with 1 risk factor had 3-year OS of 25%, while those with 2-3 risk factors had 3-year OS of 10% ($p<0.001$, RR=2.08). OP correlated with ESR (correlation coefficient 0.42, $p<0.05$). The model of 3 year overall survival yielded an AUC of 70% (specificity 69,6%, sensitivity 62,2%).
Conclusions: Platelet/hemoglobin ratio and erythrocyte sedimentation rate are readily available strong prognosticators of overall survival in curative radio-chemotherapy for locally advanced non-small cell lung cancer. The outcome support the studies that suggest that inflammation-related parameters (such as ESR) should be routinely considered in determination of the prognosis of NSCLC.
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Stereotactic body radiation therapy for central lung tumors: outcomes and toxicity

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Purpose/Objective: Recent trials of stereotactic radiotherapy (SBRT) for lung cancer exclude central lesions, tumors considered within or affecting the area of the proximal bronchial tree defined as 'a volume of 2 cm in all directions around proximal bronchial tree'. Several series for central tumors have been published with various doses and fractionation. These series often proposed a scheme with a Biological Effective Dose (BED) less than 100 Gy to minimize the risk of toxicity. We investigated our original institutional experience using SBRT for central lung tumor with a scheme delivering 75 Gy in 5 fractions of 15 Gy leading to a BED of 187.5 Gy.
Materials and Methods: Our institutional SBRT database retrospectively collected demographic and treatment-related data from all patients treated at our Center. We analyzed all patients with central lung tumors treated with SBRT between September 2008 and September 2012. Local control (LC) and overall survival (OS) were calculated using Kaplan- Meier estimates. Toxicity was graded using the Radiation Therapy Oncology Group Common Toxicity Criteria. Tumor response was scored using Response Evaluation Criteria in Solid Tumors v1.1. Predictors for toxicity, LC, and OS were analyzed using Cox proportional hazard regression models.
Results: A total of 43 central lesions in 41 patients (23 with primary, 12 with metastatic tumors, 6 no biopsy proven) were treated. Median age was 71 years (range: 51-88) and median follow up was 24.4 months (1-67). Seventeen patients had prior surgery: 10 lobectomies, 3 pneumonectomies, 4 wedge resections. Radiation was delivered in 5 equal fractions of 12 to 15 Gy each to a median prescription isodose line of 78.9% (range, 68-80%). Thirty-four tumors (79%) were treated with the original regime (75 Gy= 5 X 15 Gy). In order to respect the dose constraints of organs at risk we have changed the dose per fraction for 9 tumors (21%) (n= 4: 70 Gy/5 Fr; n=5: 60 Gy/5 Fr). Overall, there were 4 local failures resulting in 1-year LC rate and 3-years local LC rate of 82.2% and 78.5% respectively. Grade 3 toxicities were dyspnea (n = 2), pneumonia (n = 3), pleural effusion (n = 1) and parietal pain (n = 1). One patient previously treated by pneumonectomy died of dyspnea grade V 12.9 months after treatment. The actuarial 1-year and 3-year overall survival was respectively 89.4% and 52.7%.
Conclusions: SBRT for central lung tumors offers high rates of local control and acceptable toxicity rates comparable to published data for peripheral tumors.

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A new SBRT Technique with the lung totally arrested (Arrested Lung Ablative Radiotherapy - ALART)

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Purpose/Objective: To describe a new technique of External Radiotherapy Hypofractionated with immobilised patient and with the Lung arrested, which we have set into motion in our centre and which we have called: 'Arrested Lung Ablative Radiotherapy' (ALART). The second objective was to investigate the possible parameters of movement in the treatment.
Materials and Methods: We use this technique in four patients, treated with RT-54Gy (3 fractions); IMRT: 34 and 27Gy two lesions (1 fraction), RT-32Gy (1 fraction) and RT-30Gy (1 fraction). To carry out the technique, general anaesthesia is applied with mechanical ventilation until we arrested the lung, to achieve that we use a portable extra-corporeal membrane oxygenation (ECMO) device (Cardiohelp™-Maquet©) with a Normo-hypothermia module by femoral (arterio-venous) cannulation. For the transport and immobilization of the patient we used the Image Provider® (SIHO©) transfer trolley with vacuum mattress immobilizer and an abdominal compressor frame with the ECMO device, keeping the lung arrested and immobilized from the Plan-CT to the CT-post-Treatment. The calculation was done with a TPS XiO (CMS-Elekta). For the positioning of the patient we used a stereotaxic system Exactrac® (Brainlab©) and ConeBeam (Elekta). The LINAC was a Primus (Siemens) and Synergy (Elekta) using the portal image system in movie mode and the Exactrac® to monitorized the movement of the patient in the Siemens LINAC and the ConeBeam imaging for the Synergy LINAC. We fused through rigid fusion the pre-CT and the Post-CT at the level of the tumour and at a global level. In each of the fusions we transferred PTVs & GTVs and we measured the distances between the center of the volumes.