

	Median survival (month)	p
p53 positive	5,03	0,2
p53 negative	8,2	
Ki67 positive	5,3	0,5
Ki67 negative	8,4	
EGFR positive	5,3	0,5
EGFR negative	8,2	
	Median survival (months)	p
PS = 0	11,8	10-6
PS = 1	4,1	
PS = 2	1,6	
Age less 59 years	5,4	0,9
Age > 59 years	8,2	
Female	7,5	0,5
Male	5	
N0	9,7	0,008
N1	1,3	
N2	8,3	
N3	5,2	

**Conclusions:** At this time of the study, there was no relation between expression of p53, EGFR, cell proliferation defined by ki67 and survival. Correlation between PS, nodes extension and survival is confirmed. Larger and longer follow-up studies may be needed to determine the prognostic role of expression of those new factors in NSCLC.

**P3-177 NSCLC: Radiation Posters, Wed, Sept 5 – Thurs, Sept 6**

**Essential role for intensity-modulated radiotherapy (IMRT) in post-pneumonectomy mediastinal radiotherapy for stage III-N2 non-small cell lung cancer**

Haasbeek, Cornelis J.; Spoelstra, Femke O.; Lagerwaard, Frank J.; van Sorsen de Koste, John R.; Verbakel, Wilco F.; Slotman, Ben J.; Senan, Suresh

Department of Radiation Oncology, VU University Medical Center, Amsterdam, The Netherlands

**Background:** Postoperative radiotherapy (PORT) in completely resected NSCLC with mediastinal N2 metastases reduces the incidence of loco-regional recurrences. The LungART study is an international prospective trial to be activated in 2007, randomizing between PORT (54Gy) and observation. Although recent reports suggest that PORT could improve survival, a previous meta-analysis had suggested increased treatment-related mortality, underscoring the need to limit doses to the heart and lung using modern treatment techniques. IMRT is currently not permitted in the LungART trial due to concerns about radiation toxicity arising from an increase in lung volumes exposed to low doses. We performed a planning study to determine if dose-constraints for critical organs could be achieved in PORT after pneumonectomy.

**Methods:** Conventional 3D (Eclipse TPS, Varian Medical Systems) and IMRT (Helios, VMS) planning techniques were compared in five post-pneumonectomy patients (3 right-sided and 2 left-sided). Both limited and extended target volumes were designed according to the

LungART protocol. The limited target volume consists of the bronchial stump, ipsilateral hilus, nodal stations 4 and 7, and in the case of left sided tumors also stations 5-6. Extended volumes are used when stations 8-9 contain metastasis, and consist of the above, plus the paraesophageal and pulmonary ligament nodes (stations 8 and 9). All target volumes were derived from 4-dimensional (4D) CT scans, incorporating movement. A 3D margin of 5 mm was added to derive planning target volumes (PTV). The planned dose was 54 Gy (1.8 Gy/ fraction), using the following constraints: maximum spinal cord dose 45 Gy; maximum dose of 35 Gy to ≤30% of the cardiac volume; maximum dose of 20 Gy to ≤15% of the lung volume.

**Results:** For the limited PTVs, critical organ constraints were met in all cases for both conventional radiotherapy and IMRT. For extended PTVs, critical organ constraints could only be met using IMRT (Figure 1). This could be achieved without increasing low dose lung volumes (V5). Using conventional techniques for the extended target volumes, cardiac doses significantly exceeded the specified constraints.

**Conclusions:** The use of IMRT appears essential to reduce cardiac doses in patients whose PORT volumes include nodal stations 8 and 9. The decision to exclude IMRT in the forthcoming LungART trial should be revised. Planning data on the benefits of respiration-gated IMRT delivery for these patients will be available at the time of the meeting.

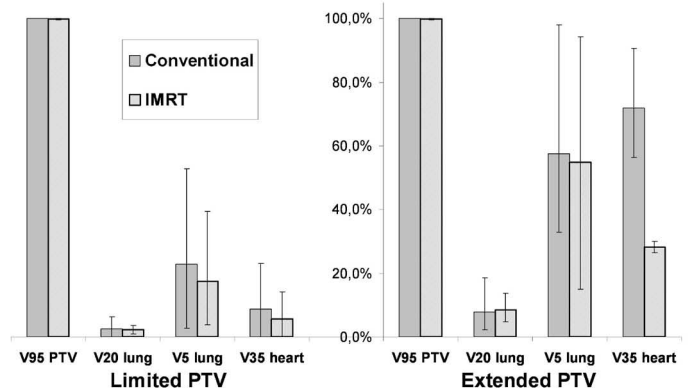


Figure 1: Dose levels (mean percentage in 5 patients) using either conventional radiotherapy or IMRT, in limited and extended target volumes. The maximal spinal dose was below 45Gy. Error bars represent minimum and maximum values.

**P3-178 NSCLC: Radiation Posters, Wed, Sept 5 – Thurs, Sept 6**

**Occurrence of brain metastases in locally advanced NSCLC treated with radical radiotherapy (RT)**

Hansen, Olfred; Hansen, Karin H.; Stolberg-Rohr, Anthon Odense University Hospital, Odense, Denmark

Occurrence of brain metastases (BM) is a major problem in NSCLC. To evaluate the influence on survival in locally advanced NSCLC treated with radical RT, a retrospective analysis was performed of the patients treated at our institution.

**Methods:** From June 1995 to Feb. 2005 207 patients with non-resectable NSCLC stage IIB-IIIAB received radical 3-D conformal RT with a planned dose ≥60Gy/30 F. Data on BM were retrospectively obtained from the patient files. End points were occurrence of BM and survival. Min. follow-up was 24 months.