ALTERATION OF PULMONARY FUNCTION RELATED TO COMBINED RADIATION AND CHEMOTHERAPY FOR LUNG NEOPLASM. N. Barthelemy-Brichant*, L. Baugnet, L. Bosquée, P. Bartsch, J.M. Deneufbourg. CHU and Hop. de la Citadelle, B.4000 LIEGE and CEN B. 2400 MOL BELGIUM

Current treatment modalities for lung cancer include surgery, radiation therapy, chemotherapy, used in various combinations. In patients with non metastatic advanced disease, concomitant radiation and chemotherapy would improve survival and/or disease free interval. However, such a combination could increase the rate of side effects. The present study was undertaken to determine the alteration of pulmonary function tests induced by a treatment combining chemotherapy and external beam radiation administered with curative intent. METHODS : Ten patients with an ECOG performance status 0-2 were studied. They had a documented primary unresectable lung cancer stage III A or B (NSCLC : 9, SCLC : 1). Chemotherapy was composed of cisplatin, ifosfamide and vindesine. For radiation therapy, the target volume encompassed the tumor, the ipsilateral hilum, the entire width of the mediastinum and both supraclavicular fossae. The total dose (60 Gy : n=9, 54 Gy : n=1) was delivered in 2 Gy daily fractions, 5 days a week over a 8 week period. Pulmonary function tests (including measurement of vital capacity(VC), forced expiratory volume at 1 sec.(FEV1) and CO diffusion (TKCO/VA))were performed before any treatment (Before), when 40 Gy had been delivered (40 Gy), within 2 weeks after the end of radiation therapy (End), during the 2nd and the 3rd month following the completion of radiation therapy (2°M,3°M).RESULTS are shown in the table as a percentage of normal value.

	Before	40 Gy	End	2° M	3° M	mean±SD
VC	90±15	92±10	87±10	93±11	88±12	
FEV1	74±13	78±14*	74±15	79±15*	69±13	*p<0.05 vs 3°M.
TKCO/VA	73±15	57±9*	56±13*	57±13*	61±13*	*p<0.05 vs Before

Six patients were afflicted with obstructive lung disease (FEV1<75%) at the time of inclusion. Two patients developped clinical signs of radiation pneumonitis. On average, there were small and transient changes of FEV1. TKCO/VA was worsened. This worsening was present at 40 Gy and persisted for at least 3 months after the end of radiation therapy.

DISCUSSION. Early alterations of pulmonary function tests induced by concomitant radiation and chemotherapy are moderate in most patients suggesting that chemotherapy and external beam radiation can be combined without much damage to lung function. Further hindsight is needed to evaluate the long term respiratory disfunction associated with that treatment modality. We are currentlty assessing the value of predictive factors (e.g :serial determination of TGF-beta blood level) in determining which patients are at risk of developping a puimonary disfunction under these conditions..