produces the benchmark 40% 2 year survival(1). Current intergroup trials (SWOG, ECOG, CALGB) continue to use this combination for the concurrent chemoradiotherapy parts of their combined modality schedules.

In NSCLC this concept has been tested in a number of trials with a third of comparisons demonstrating significant advantage of the concurrent approach 2-5 giving a 5% survival benefit at 5 years. The challenge for the clinical community is to test whether this would be additional to increasingly possible radiation dose escalation and what would be the optimal way of scheduling an effective combined modality treatment regimen.

References

[1] Turrisi AT et al N Eng J Med 340: 265-271, 1999
[2] Schaake-Koning C et al N Eng J Med326: 524-530, 1992
[3] Furuse K et al J Clin Oncol 17: 2692-2699, 1999
[4] Jeremic B et al J Clin Oncol 13: 452-458, 1995
[5] Jeremic B et al J Clin Oncol 14: 1065-1070, 1996

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The value of staging with PET

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New diagnostic and treatment strategies are needed to improve the survival rates of patients with lung cancer. Accurate tumor staging is essential for choosing the appropriate treatment strategy of lung cancer. The combination of whole-body positron emission tomography (PET) with 18F-Fluorodeoxyglucose (FDG) and computed tomography (CT) has made a major impact in the diagnosis and staging of lung cancer. FDG-PET is an established imaging technique which detects local differences in tissue metabolism.

It has been shown that whole-body FDG-PET is a very effective imaging modality for non-small cell lung cancer (NSCLC). PET is used to characterize solitary nodules, to screen for mediastinal and extrathoracic metastases (except the brain), and to detect persistent or recurrent disease. Sensitivity and specificity of FDG-PET for determining the dignity of solitary pulmonary nodules are 96% and 80%, 88% and 92% for mediastinal staging, 94% and 97% for detection of extrathoracic metastases, 99% and 89% for detection of recurrence. FDG-PET is useful too in evaluating and staging small cell cancer, lymphomas and mesotheliomas.

The combined strategy of CT and PET is cost-effective in staging of non small cell lung cancer because it prevents patients with unresectable disease from undergoing not curative surgery.

Currently, new combined in-line PET-CT-scanners are available. To our own experience, the availability of anatomic details afforded by integrated PET-CT scanning will contribute to the accurate staging of lung cancer. Fusion images can be intergrated in the radiotherapy treatment planning to adjust the radiation field.

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The surgeon's view

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The optimal algorithm incorporating positron emission tomography (PET) for the evaluation of pulmonary abnormalities and the detection of distant metastases has not yet been identified.

Clinical staging of bronchogenic carcinoma is performed using the TNM system, which requires accurate characterization of the primary tumor, regional lymph nodes and exclusion of distant metastases. The role of PET scanning is quite different for these three components of staging. Evaluation of solitary nodules of unknown origin by PET can identify nonmetabolically active lesions whereas the sensitivity for detection of malignant lesions is reported to be 100%, thus demonstrating that PET is superior to transthoracic needle aspiration. PET has limited usefulness in determining the T-status of the pulmonary lesion. Unfortunately, PET has poor accuracy in defining T3 and T4 disease (invasion of adjacent structures or pleural disease, resp.) Several studies in the last years examined the role of PET for detection of regional nodal disease. PET has been demonstrated to be superior to CT. The average sensitivity of PET for nodal disease was near that reported for mediastinoscopy, however is closely related to the spacial resolution. PET seems to be highly useful in defining the M-status identifying metastases in asymptomatic patients with negative CT-scans on the one hand and characterizing CT-findings as benign on the other. Taking into consideration the chance of cost saving due to the prevention of unnecessary invasive procedures PET will become an increasingly important part of staging lung cancer patients.