## 890 Cytologic findings of the atypical cells possibly derived from preinvasive bronchial lesions detected by Light-Induced Fluorescence Endoscopy (LIFE) as a detailed examination in lung cancer screening system using sputum cytology

M. Baba, T. Fujisawa, Y. Nomoto, K. Shibuya, H. Hoshino, M. Suzuki, T. Iizasa, Y. Saitoh, K. Hiroshima, A. Iyoda, A. Taguchi, A. Ishikawa, H. Saito. *Dept. of Surg., Inst. of Pulm. Canc. Res., Chiba University School of Medicine, Chiba, Japan*

By observing the attenuation of autochlorofluorescence or dark red fluorescence in LIFE, not only invasive but also preinvasive micro lesions in the central airway could be detected. In this study, we conducted LIFE on cases that required detailed examination in the Chiba Lung Cancer Screening System using sputum cytology and the distinctive cytologic findings in the sputum specimens corresponding to the bronchial lesions were studied. Thirty-two patients with bronchial lesions consisted of 7 invasive squamous cell carcinomas (ISCC), 2 squamous cell carcinomas in situ (SCCIS), 7 severe dysplasias (SD), 6 moderate dysplasias (MoD), 4 mild dysplasias (MiD), 4 squamous metaplasia (SM), and 2 basal cell hyperplasias (BCH) detected in LIFE and diagnosed histologically from October 1997 to November 1999 were included. The patients comprised of one female and 31 males, with a mean age of 68.8 years and a mean smoking history of 59.9 pac-years. Cytologic findings of sputum specimens were categorized into two degrees, and the characteristic findings corresponding to preinvasive bronchial lesions including CIS and SD were studied retrospectively. The following table shows the cytologic findings corresponding to histological diagnoses (% values; $^*p < 0.05$).

| | thick | hyper- | chromatin | | nuclear | |
|---|---|---|---|---|---|---|
| | cytoplasm | chromasia | granular | uneven | thick rim | pleomorphism |
| ISCC | 57 | 100 | 100 | 86* | 86* | 86* |
| SCCIA/SD | 44* | 67* | 100* | 0* | 0* | 0* |
| MoD~BCH | 0* | 6* | 25* | 0 | 0 | 0 |

Cytologic findings including thick cytoplasm, hyperchromasia, and course chromatin revealed significant difference between ISCC and preinvasive bronchial lesions. Cytologic findings including uneven distribution of the chromatin, thick nuclear rim, and nuclear pleomorphism revealed significant difference between preinvasive bronchial lesions and MoD/MiD/SM/BCH.

The authors conclude that above characteristic cytologic findings in the sputum specimens appear to capacitate to diagnose preinvasive bronchial lesions cytologically.

## 891 The prognostic significance of quantitative parameters in patients with squamous-cell lung cancer

L. Nikulitchev, M. Davydov, V. Bogatyrev, B. Polotsky, S. Volkov. *The N.N. Blokhin Cancer Research Center Department of Thoracic Oncology, Moscow, Russia*

DNA flow cytometry (FACScan, Becton Dickinson; software Multicycle, Phoenix Flow Systems, USA) was used in 47 patients with squamous-cell lung cancer in order to improve the assessments of prognosis. In 17 patients with highly differentiated squamous-cell lung cancer the rate of aneuploid tumors was 79.4% and mean level of IDNA was low (1.31 ± 0.04%) and the number of aneuploid cells in tumor was 39.7 + 4.3%. Proliferative activity was moderate in that group, but in 27.4% of cases the proliferative activity turned to be high due to significant number of sells in S-phase of mitotic cycle. In 8 patients with moderately differentiated squamous-cell lung cancer the rate of aneuploid tumors was 71.1% and mean level of DNA and PI. were similar to those in the previous group. In 22 patients with poorly differentiated squamous-cell lung cancer all the tumors were aneuploid and mean level of IDNA was high (1.60 ± 0.07%) and the proliferative activity was intensive (28.8 ± 1.6%). The reduce of the level of cellular differentiation is connected with the increase in IDNA level and in proliferative cancer cells activity. The follow-up data in 27 radically operated patients staged $T_{1-3}N_{1-2}M_0$ revealed no recurrent disease for two years in 10 cases of diploid cancers as compared with 11 tumor progressions out of 17 aneuploid patients ($p < 0.05$). Thus, the tumor progression was more frequently seen in patients with aneuploid cancers, 2-year survival rate for $T_{1-3}N_{1-2}M_0$ stage of disease turned to be significantly ($p < 0.05$) higher in patients with diploid than with aneup[1] bid tumors.

## 892 Simultaneous transmission-emission attenuation correction in mediastinal staging of lung cancer

C. Lequaglie, A. Chiti[1], P.P. Brega Massone, E. Bombardieri[1], I. Cataldo. [1]*Oncologic Thoracic Surgery and Nuclear Medicine Unit, National Cancer Institute, Milano, Italy*

Non invasive staging procedure are better than other. We evaluate the usefulness of a Simultaneous Transmission Emission Protocol (SPET) for attenuation correction to study mediastinal involvement in lung cancer. Forty-one patients (38 male, 3 female) with a meanage of 60.5 years (range 33–75) with biopsy proven or suspected lung cancer entered the study. All pts gave their written informed consent to participate in the study. Pts were injected with 740–925 MBq of technetium-99m-sestamibi (MIBI). SPECT images were acquired on a Picker Prism 3000 3-head system equipped with an external gadolinium-153 source holder and cardio-fan collimators. Images were acquired on the 3 heads in 1230 steps, 30 s/step, 128 × 128 matrix, zoom 1, energy set on 100 and 140 KeV. The six raw data files were merged in 2 (emission and transmission). Transverse slices of 1 pixel were reconstructed using an interative algorithm. Emission and transmission data were then filtered using a Butterworth (order 13, cut-off 0.40). Transmission data were used as anatomical reference when viewing the scans. Dosimetry with TLDs in a RANDO phantom demonstrated an absorbed dose rate from the external source of 1.7 ± 1.1 microSv/h. There were 18 squamous carcinomas, 17 adenocarcinomas, 2 SCLC, 1 large cell carcinoma; 3 cases had not non neoplastic disease. Twenty-four lesions were in the right lung and 17 in the left one; all lesions were visualized by both MIBI and CT scan, which were completely in accordance. Twenty patients had pathologic assessment of mediastinal lymph-nodes (14 surgery, 6 mediastinoscopy). Results of mediastinal staging were the same for MIBI and CT scan: 15 true positive, 4 false positive, 1 false negative.

In this preliminary study we reported the clinical feasibility of the STEP method in the evaluation of mediastinum.

## 893 Phase II with Taxol® (Paclitaxel) (T), Carboplatin (C) and brain radiotherapy (RT) in patients (PTS) with inoperable brain metastases (BM) of non-small cell lung cancer (NSCLC)

G. Robinet[1], H. Léna[2], A. Rivière[3], J.L. Breton[4], G. Dabouis[5], J.P. Kleisbauer[6], L. Thiberville[7], J.Y. Douillard[8], M. Pérol[9], F. Vaylet[10], C. Dissoubray[11], B. Grau[11]. [1]*C.H.R. A. Morvan, Brest;* [2]*C.H.R.U. Pontchaillou, Rennes;* [3]*C. R. F. Baclesse, Caen;* [4]*C.H.G., Belfort,* [5]*C.H.U. Hôtel Dieu, Nantes;* [6]*C.H. Sainte-Marguerite, Marseille;* [7]*C.H.U. C. Nicolle, Rouen;* [8]*C.R.L.C.C. René Gauducheau, Nantes;* [9]*C.H. Croix-Rousse, Lyon;* [10]*H.I.A. Percy, Clamart,* [11]*Bristol-Myers Squibb, Brest, France*

Brain RT is the standard treatment of BM in NSCLC, but recent data suggest that CT is also effective in this disease. Thus we conducted a multicenter phase II study to evaluate the efficacy and safety of T/C before delivering RT.

**Primary endpoint:** Efficacy on BM after the first 2 courses of this combination.

**Population:** Patients with histologically proven NSCLC and inoperable BM without previous chemotherapy and brain radiotherapy, measurable disease, age < 75, PS ≤ 2, no previous neuropathy.