The authors compare in their database including all patients with lung cancer since January 1990, the 160 patients included in 1990-5 (cohort A), and the 507 patients included in 2000-5 (cohort B). The comparison shows, significantly, an increase of number of lung cancer, an increase of women (A: 12%, B: 25%), of adenocarcinomas (A: 30%, B: 53%), of stage IV (A: 33%, B: 44%) and a reduction of squamous cell carcinomas (A: 41%, B: 23%), of stage IIIB (A: 22%, B: 12%). Small cell lung cancer is stable (A: 11%, B: 9%).

Tobacco use is more important in cohort A (97%) than in B (92%). Age of both cohorts is the same (63.4 and 63.8 years)

In both cohorts, diagnosis is suspected in 77% in front of symptoms. The diagnosis is done in cohort A by endoscopy (70%) and in cohort B by endoscopy (43%) and by CT-Transhthoracic puncture (20%). Global survival is better in cohort B, 14.7 months, than in cohort A, 10.7 months (p<0.002).

All TNM stages have a best survival in cohort B, but it is only significant for stage IV, PS 0-1 patients (B: 10.5 months, A: 6.7 months, p<0.0003) and for stage IIIB patients (B: 13.2 months, A: 9.3 months, p<0.0004).

For the histology, for the gender, the difference are not significant.

This best result seems due to a best selection of patients (PET scan, RMI staging), to an increase of number of chemotherapy treatment in stage IV, in first and second line, and to an use of third generation drugs.

P1-052 Epidemiology and Tobacco Control Posters, Mon, Sept 3

Menopausal status of women may affect survival in advanced NSCLC: Analysis of recent Eastern Cooperative Oncology Group (ECOG) studies using age of 60 years or older as a surrogate marker

Wakelee, Heather A.1 Dahlberg, Suzanne E.2 Schiller, Joan H.3 Langer, Corey J.4 Sandler, Alan B.5 Brahmer, Julie R.6 Belani, Chandra P.7 Johnson, David H.5

1 Stanford University, Stanford, CA, USA 2 Dana Farber Cancer Institute/ECOG, Boston, MA, USA 3 University of Texas - Southwestern, Dallas, TX, USA 4 Fox Chase Cancer Institute, Philadelphia, PA, USA 5 Vanderbilt University, Nashville, TN, USA 6 Johns Hopkins University, Baltimore, MD, USA 7 University of Pittsburgh, Pittsburgh, PA, USA

Background: Women with advanced NSCLC tend to live longer than men for unclear reasons. A recent Southwest Oncology Group (SWOG) analysis of six trials of patients with advanced stage NSCLC (N=1334) again showed a survival advantage for women versus men, but interestingly noted a cut-point for women around age 60, such that older women tended to live longer than younger women.(Albain IASLC-Chicago 2006) Menopausal status was postulated as one explanation given the role of estrogen in lung cancer. To further explore this observation, we evaluated pooled data from two large ECOG trials, E1594 and E4599.

Methods: E1594 randomized patients with advanced NSCLC to one of four platinum containing two-drug combination regimens, all of which had comparable efficacy. E4599 randomized patients to carboplatin/paclitaxel (one of the regimens on E1594) with or without bevacizumab. Because of confounding factors with bevacizumab, only the control arm is included in this analysis. Eligible patients from both E1594 and the control arm of E4599 (N=1590) were divided into male and female cohorts and separated into age groups of < 60 or ≥ 60 years old. Survival was calculated separately for each cohort using the method of Kaplan-Meier. Known prognostic factors such as performance status, weight loss, and stage were also compared for each gender/age cohort using two-sided Fisher’s exact tests.

Results: 1590 eligible patients were included in this analysis consisting of 611 (38%) women and 979 (62%) men. 274 (45%) and 390 (40%) of women and men respectively were < 60 years old. A higher proportion of those ≥ 60 were male (p=0.05), but there was no other statistically significant differences in known prognostic factors between the 4 gender/age cohorts. A statistically significant difference in survival, however, was found. The median survival time (MST) for women ≥ 60 years old was 11.6 months, versus 9.0 months for women < 60 (logrank p=0.03). Men overall had lower survival than women, but no difference was seen for older men (MST of 7.4 months) versus men < 60 years old (MST of 8.3 months). Progression free survival (PFS) was also better for older women (4.7 months for those ≥ 60 years old versus 3.8 months for younger women (logrank p=0.009). Again no difference was seen for PFS for men of different ages, but men overall had shorter PFS than women.

Conclusions: As shown previously, women with advanced stage NSCLC live longer than men with the disease but the survival advantage is primarily for post-menopausal women at least 60 years of age. Known prognostic factors such as performance status, significant weight loss, and stage cannot account for this difference. Men did not show a difference in survival by age. These data may indicate an important difference in lung cancer survival modified by menopausal status. These data and the recent SWOG analysis make further investigation into the role of the estrogen pathway in lung cancer more compelling.

P1-053 Epidemiology and Tobacco Control Posters, Mon, Sept 3

Genetic polymorphisms in Enhancer of Zeste 2 (EZH2) and the risk of lung cancer

Yoon, Kyong-Ah; Park, Sohee; Hwangbo, Bin; Lee, Jin Soo National Cancer Center Korea, Goyang, Korea

Background: Histone methyltransferase (HMT) enzymes that methylate lysine residues of histone are involved in chromatin-mediated gene expression. The human homolog of the Drosophila gene Enhancer of Zeste 2 (EZH2) contains a highly conserved motif called the SET domain that required for the HMT activity. EZH2 has an important role in methylating histone H3 on Lys27, which leads to gene silencing. Overexpression of the transcriptional repressor EZH2 was reported to be associated with the poor prognosis in various malignancies including breast cancer and prostate cancer. In this study, we investigated the association between EZH2 polymorphisms and lung cancer risk.

Materials and Methods: In a hospital-based study of 335 lung cancer patients and 335 age-, gender-matched healthy controls, 37 polymorphisms of EZH2 were examined. Of the 335 lung cancer patients, 189 (56%) had adenocarcinomas, 77 (30%) had squamous cell carcinomas and 29 (9%) had small cell lung cancer. For a highly multiplexed SNP genotyping, the GoldenGate genotyping assay (Illumina Inc.) that combines an oligonucleotide ligation and allele-specific extension reaction was performed. Statistical analyses were performed using logistic regression models with the adjustment for smoking status, pack-years and family history of cancer.

Results: All genotyped polymorphisms of EZH2 were in Hardy-Weinberg equilibrium in normal control population. When all age groups were analyzed together, one variant genotype of +19639A>G showed a significant association with the reduced risk of lung cancer (AOR=0.72, 95% CI =0.52-0.99, p=0.04).
95% CI: 0.56-0.94). Stronger association between EZH2 polymorphisms and the reduced lung cancer risk was observed particularly in younger age group (< 58 years). Associated polymorphisms were -12712T>A, -4003C>G, and -529G>A in intron 1, +35558C>T in intron 15, and +38931G>C in intron 19 (AOR = 0.65-0.68, P = 0.02-0.04).

One haplotype (ht2) of EZH2 was significantly associated with the reduced lung cancer risk in overall group (AOR = 0.72, 95% CI: 0.55-0.93) as well as in younger age group (AOR = 0.66, 95% CI: 0.45-0.96).

**Conclusion:** This is the first study to show a significant association between polymorphisms of the EZH2 gene and the lung cancer risk, particularly in younger age group. This study suggested that the presence of variant allele in EZH2 may be a protective factor for lung cancer, hence an important marker for lung cancer susceptibility.

**P1-280 Epidemiology and Tobacco Control Posters, Mon, Sept 3**

**Survey on health system aspects concerning malignant diseases (lung cancer) in limited health resources country**

Jovanovic, Dragana1 Vasic, Nada1 Stevic, Ruza1 Popevic, Spasoje2 Velinovic, Marta2 Samardzic, Natalija2 Dimic, Sanja2 Maric, Dragana2

1 Institute for Lung Diseases and TB, Clinical Center of Serbia, Belgrade, Serbia; 2 Institute for Lung Diseases and TB, Belgrade, Serbia

Mortality due to malignant diseases increased for about 28% from 1990-2002 in Serbia. Every third patient has the advanced disease at the time of diagnosis.

The aim of the survey was to estimate some aspects of health system concerning malignant diseases, preferably lung cancer, in Serbia. The survey (“face to face”) on public opinion comprised 1023 persons - representative sample, 171 cancer patients (pts) - majority with lung cancer, and 162 doctors - majority dealing mostly with lung cancer: their attitudes about national health funding for malignant diseases, cancer patients position and problems during the disease course, provided disease-related informations to pts, and diagnostic access i.e. delays. All 3 groups think that not enough money is provided for health and it is not well distributed. Doctors and pts agree that cancer pts position is pretty bad, worse than others; the most frequent patients problems for both the same: not well informed about the disease, late diagnosis and drug availability. The time from the onset of symptoms until referring to the doctor was in average 182 days, and to establish the diagnosis additional 78 days.

Doctors find the crucial problems to be: going to see the doctor too late, in many cases lack of adequate facilities and too many pts who need it.

**P1-054 Imaging and Staging Posters, Mon, Sept 3**

**Percutaneous needle biopsy for peripheral lung lesions smaller than 2cm performed under fluoroscopic CT guidance**

Asakura, Keisuke1 Kimura, Yoshishige2 Tsukada, Norimasa1 Izumi, Yotaro1 Kawamura, Masafumi1 Kobayashi, Koichi1

1 Division of General Thoracic Surgery, School of Medicine Keio University, Tokyo, Japan 2 Division of General Thoracic Surgery, School of Medicine Keio University, Shinjuku-ku, Japan

**Background:** With the advent of high resolution CT, the incidence of small lung lesions continues to increase. It is very difficult to diagnose these lesions with conventional bronchoscopy, and partial resection just for diagnosis should be minimized for the patient as well as medical cost. While significant improvements are being made in diagnostic bronchoscopy such as virtual bronchoscopy, these devices still require further studies. In the present study we analyzed our single institution experience of CT guided needle biopsy for small lung nodules.

**Methods:** Retrospective analysis was done in 174 cases with lung lesions smaller than 2cm. Bronchoscopic diagnosis was attempted at least once in all cases. A semi-automatic 18G needle was used with a specially designed holding device, and a lead plate which effectively minimized radiation exposure of the physician. The patients breathed spontaneously throughout the procedure.

**Results:** 97 were males and 77 were females. Age ranged from 20 to 91, average 63. The lesions were considered to be so called GGOs in 32, and nodules in 142. The lesions were diagnosed as malignant in 117, and non-malignant in 57. Overall accuracy was 87.4%. The distance from the point of skin penetration to the lesion ranged from 16 to 112 mm, average 61 mm. Pneumothorax was detected in 33 cases. Non had symptoms. 31 cases regressed spontaneously. We performed prophylactic manual aspiration in 2 cases. Hemosputum was seen in 14 cases all of which abated spontaneously.

**Comments:** At present, we consider percutaneous fluoroscopic CT guided needle biopsy can be effective in providing diagnosis for these small lung lesions. Concerns still remain regarding the complication of air embolism, the mechanism of which is still unclear.

**P1-055 Posters, Mon, Sept 3**

**Role of FDG-PET/CT in nodal staging with non-small cell lung cancer**

Asato, Yuiji; Sato, Motohiro; Kiyoshima, Moriyuki; Kaburagi, Takayuki; Yokose, Tomoyuki; Amemiya, Ryuta

Ibaraki Prefectural Central Hospital & Cancer Center, Kasama, Japan

**Purpose:** Usefulness of fluorodeoxyglucose (FDG) positron emission computed tomography (PET) in diagnosis of lung cancer has been reported. We assess the role of FDG PET/CT scan in lymph node staging of non-small cell lung cancer (NSCLC) and evaluate the maximum standard uptake value (SUVmax) of the primary tumor as a predictor of lymph node metastasis.

**Patients and Method:** From March 2006 to December 2006, 81 preoperative patients with suspected or proven NSCLC were examined by FDG-PET/CT. We diagnosed lymph node staging and calculated

**Imaging and Staging**