284. Epidemiology of lung cancer and screening

P2726
Patients with a lung cancer are changed: About a French monocentric cohort between 1990 and 2010


<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Sex ratio M/F</td>
<td>7.3</td>
<td>5.6</td>
<td>2.9</td>
<td>2.7</td>
<td>3.3</td>
</tr>
<tr>
<td>Median age</td>
<td>63</td>
<td>65</td>
<td>65</td>
<td>67</td>
<td>65</td>
</tr>
<tr>
<td>Non-smoker</td>
<td>4%</td>
<td>8%</td>
<td>8%</td>
<td>12%</td>
<td>8%</td>
</tr>
<tr>
<td>Adenocarcinoma</td>
<td>30%</td>
<td>39%</td>
<td>52%</td>
<td>57%</td>
<td>47%</td>
</tr>
<tr>
<td>Epidermoid</td>
<td>41%</td>
<td>32%</td>
<td>23%</td>
<td>19%</td>
<td>27%</td>
</tr>
<tr>
<td>Small cell</td>
<td>10%</td>
<td>10%</td>
<td>9%</td>
<td>8%</td>
<td>9%</td>
</tr>
<tr>
<td>Stage I</td>
<td>17%</td>
<td>29%</td>
<td>22%</td>
<td>22%</td>
<td>23%</td>
</tr>
<tr>
<td>Stage II</td>
<td>9%</td>
<td>8%</td>
<td>4%</td>
<td>4%</td>
<td>6%</td>
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<tr>
<td>Stage III</td>
<td>40%</td>
<td>35%</td>
<td>25%</td>
<td>24%</td>
<td>28%</td>
</tr>
<tr>
<td>Stage IV</td>
<td>32%</td>
<td>29%</td>
<td>44%</td>
<td>50%</td>
<td>49%</td>
</tr>
<tr>
<td>Dg by endoscopy</td>
<td>73%</td>
<td>60%</td>
<td>43%</td>
<td>44%</td>
<td>52%</td>
</tr>
<tr>
<td>Dg by function</td>
<td>3%</td>
<td>9%</td>
<td>21%</td>
<td>21%</td>
<td>15%</td>
</tr>
</tbody>
</table>

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Methods: see table.

Results: This analysis shows the increase of adenocarcinoma with increase of female patients, of non-smoker-status and increase of diagnosis by TDM function. Non small cell is stable. Median age of diagnosis is a little bit increasing.

The increase of stage IV and the decrease of stage III is due to a best staging with the routine use of PET and BMI procedures since 2000.

Conclusion: This cohort is the largest single center in French literature. The analysis over 20 years shows epidemiological and histological changes.

P2727
Increased survival in lung cancer patients with diabetes mellitus: A large cohort study
Peter Hatlen1,2, Bjørn Henning Grømberg1,4, Arnulf Langhammer1,6, Sven M. Carlsen1,7, Tore Amundsen1,2. 1Dept of Thoracic Medicine, St Olovs Hospital, Trondheim, Norway; 2Dept of Circulation and Medical Imaging (ISU), Norwegian University of Science and Technology, Trondheim, Norway; 3Dept of Cancer Research and Molecular Medicine (IKM), Norwegian University of Science and Technology, Trondheim, Norway; 4Dept of Oncology, St Olavs Hospital, Trondheim, Norway; 5HUNT Research Centre, Norwegian University of Science and Technology, Trondheim, Norway; 6Dept of Public Health and General Practice (ISM), Norwegian University of Science and Technology, Trondheim, Norway; 7Dept of Endocrinology, St Olovs Hospital, Trondheim, Norway.

Background: Individualized treatment in lung cancer (LC) needs precise characterization of the tumour and host. Data on the impact of diabetes mellitus (DM), the most frequent endocrinological disorder, on the prognosis of lung cancer is conflicting.

Aims: To define the importance of DM for survival in lung cancer.

Method: We analyzed data from a large cohort study, the Nord-Trøndelag Health Study (HUNT study) linked to the Norwegian Cancer Registry, and controlled the results using two lung cancer studies, the Pernowetter Gmeindatbank study (PIG study) and the Norwegian Lung Cancer Bio Bank (NLCB). Survival rate between lung cancer patients with and without DM were compared using the Kaplan-Meier model and Cox regression analysis.

Results: Of a total number of 107,127 study participants there were 5,448 persons with DM and 18,772 cases of LC. Among the LC patients 85 patients had DM. LC patients with DM showed a statistically significant survival benefit compared to LC patients without DM (p = 0.005). The 1-year, 2-year and 3 year survival in LC patients with and without diabetes showed 43%, 19%, 3% versus 28%, 11%, 0.7%, respectively.

With the Cox regression model we adjusted survival for DM, age, gender, histology, clinical stage and smoking status. The first five confounders showed to be independent factors (p < 0.001), while smoking status was not (p = 0.531).

Conclusion: Lung cancer patients with diabetes mellitus have an increased survival compared to LC patients without DM. The magnitude of the survival benefit seems to be of clinical importance and therefore justified to be studied more in detail.

P2728
Lung cancer in patients with COPD: Incidence and predicting factors
Joaquim Toeres1, Jose Marin1, Ciro Casanova1, Claudia Cote2, Santiago Carrozio3, Elizabeth Cordoba Lanu2, Rebeca Baz Davila3, Javier Zuheta1, Armando Aguirre Jaime4, Marina Saetta1, Manuel Costo5, Bartolome Celi1. 1Pulmonary, Clinica Universidad de Navarra, Pamplona, Spain; 2Pulmonary, Hospital Ntra Sra de Candelaria, Tenerife, Spain; 3Pulmonary, Hospital Miguel Servet, Zaragoza, Spain; 4Pulmonary, BayPines VAMC, St. Petersburg, United States; 5Department of Clinical and Experimental Medicine, Section of Respiratory Diseases, University of Padova, Padova, Italy; 6Respiratory Division, Royal Victoria Hospital, McGill University, Montreal, Canada; 7Pulmonary, Brughaam and Women Hospital, Boston, United States.

Background: Little is known about the clinical factors associated with development of lung cancer in patients with Chronic Obstructive Pulmonary Disease (COPD).

Objective: To explore incidence, histological type and factors associated with development of lung cancer diagnosis in a cohort of patients with COPD.

Methods: A cohort of 2507 patients without initial clinical or radiological evidence of lung cancer was followed for 62.38 months. At baseline, anthropometrics, smoking history, lung function and body composition were recorded. Time to diagnosis and histological type of lung cancer was then registered. Multivariate Cox analysis were used to explore factors associated with lung cancer diagnosis.

Results: Incidence density of lung cancer was 16.7 cases/1000 person-years. The most frequent histological type was squamous cell carcinoma (44%).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Hazard Ratio</th>
<th>95% CI</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>1.02</td>
<td>1.00-1.04</td>
<td>0.029</td>
</tr>
<tr>
<td>DLCO&lt;80%</td>
<td>1.76</td>
<td>1.15-2.62</td>
<td>0.009</td>
</tr>
<tr>
<td>BMI</td>
<td>0.95</td>
<td>0.92-0.99</td>
<td>0.111</td>
</tr>
<tr>
<td>GOLD-stage II</td>
<td>1.05</td>
<td>1.01-1.09</td>
<td>0.005</td>
</tr>
<tr>
<td>III</td>
<td>2.06</td>
<td>1.04-1.88</td>
<td>0.044</td>
</tr>
<tr>
<td>IV</td>
<td>1.87</td>
<td>0.83-4.14</td>
<td>0.159</td>
</tr>
</tbody>
</table>

Conclusions: Incidence density of lung cancer is high in COPD patients and occurs more frequently in older patients with milder airflow obstruction (GOLD stages I and II), a DLCO <80% and lower BMI. Knowledge of these factors may help direct efforts for early detection of lung cancer and disease management.

P2729
COPD prevalence in lung cancer patients – Is COPD a risk factor for lung cancer?
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Background and aim: Chronic obstructive pulmonary disease (COPD) is a common comorbid disease in lung cancer, estimated to affect 40–70% of lung cancer patients. As smoking exposure is found in 85–90% of those diagnosed with either COPD or lung cancer, coexisting disease could reflect a shared smoking exposure. We aimed to investigate the prevalence of COPD in patients diagnosed with lung cancer.

Methods: We analysed 1173 patients diagnosed with lung cancer in Internal Medicine Department between 2000 and 2010 for the presence of lung cancer risk factors.

Results: A number of 1046 patients (89.17%; p <0.0001) were former smokers/actively smoking. Preexisting disease was diagnosed in a number of 442 cases (37.68%); COPD in 257 cases, and other etiologic factors in 185 cases (58.14% versus 41.85%; p <0.0001). Histopathologic results were available in 131 cases and showed squamous carcinoma (n=78, 59.54%), adenocarcinoma (n=24, 18.32%), large cell undifferentiated carcinoma (n=11, 8.39%), and small cell carcinoma (n=8, 15.74%). Smokers versus non-smokers and COPD prevalence according to histopathologic types were the following: 71 versus 7 (p<0.0001), and 14 cases of stage I and 12 cases of COPD (19.76%) for squamous carcinoma; 15 versus 9 (p=0.1482), and 2 cases of COPD (13.33%) for adenocarcinoma; 8 versus 3 (p=0.0861), and 1 case of COPD (9.09%) for large cell undifferentiated carcinoma; and 14 versus 4 (p=0.0022), and 3 cases of COPD (16.66%) for small cell carcinoma.

Conclusions: Our study shows a high prevalence of COPD in lung cancer patients. COPD was the second most important risk factor for lung cancer, after smoking. The most important relationship of COPD was with the squamous type lung cancer.

P2730
Peculiarities of lung cancer in patients with COPD
Olga Lukina1, Alexandra Speranskaya1, Alexander Hristolubov1, AndreyLitvinov1, 2, Vasiliy Trofimiov2. 1Radiology, Pavlov’s State Medical University, Saint-Petersburg, Russian Federation; 2Hospital Therapy, Pavlov’s State Medical University, Saint-Petersburg, Russian Federation

The aim of the study was to determine main causes of mistakes in radiologic diagnose of lung cancer in patients with COPD. We examined 201 patients with moderate and severe COPD admitted to hospital during exacerbation. All patients were examined by MDCT angiography interpreted by two experienced radiologists, also previous CT scans were compared with the acquired data.

We founded cancer of main bronchi in 15,3% of patients with severe, and in 8,56% of patients with moderate COPD. Peripheral lesions were observed in 17,9% of patients with severe and 5,5% of patients with moderate COPD with significant interobserver consensus. During analysis of earlier CT examinations (a 5 year period) in 1,9% central cancer was not determined on early stage of disease, because study was performed without contrast enhancement. Peripheral neoplasms were not determined because of peribulbous growth, looking like thickening of the wall.
of bulla in 1.4% of patients, cancer growing in the place of fibrosis - 0.4%, fluid examined by CT after surgery.

P2731

**Epidemiological and histologic features of lung cancer in Montenegro**

*Milos Medenica¹, Nikola Perosovic², ¹Bronchology, Hospital for Lung Disease, Podgorica, Montenegro, ²Nikic, Montenegro, Serbia; ³Department of Anatomy, Medical Faculty, Montenegro, Podgorica, Montenegro, Serbia*

**Background:** Lung cancer is one of the most common malignant neoplasms as well as the most common neoplasm stated as a cause of death. Epidemiological characteristics of lung cancer differ among countries and regions.

**Aim:** To determine the epidemiological and histologic features of lung cancer in Montenegro.

**Methods:** Study group comprised patients in Montenegro in continuous period 1997-2010.

**Results:** In reported period number of newly diagnosed lung cancer was 2497. The incidence ranged from 29.8 in 1997 to 35.9 in 2004. Out of the total number of diagnosed lung cancer, epithelioid carcinoma was diagnosed in 1484 cases (59.8%), small cell lung carcinoma (SCLC) in 597 cases (23.9%) and adenocarcinoma in 416 cases (16.6%). The men were represented with 83.7% (2078) while the female were 16.3% (419). Ratio of smokers and nonsmokers for each histological type was (epidermoid 8:1, 2.15:1 adenoscarinoma, SCLC 9:1). The most frequent histopathological type in males was epidermoid (63%) followed by adenoscarinoma (14.5%) and then SCLC (22.5%). In women the most common cancer was epidermoid (43.5%). Adenoscarinoma accounts for 26.5% and SCLC with 30%. The percentage of smokers was 88.72%, nonsmokers represented 11.28%.

**Conclusion:** During the period 1997-2010 a significant increase in the incidence of diseases such as lung cancer was not observed, but the decrease in the frequency of epithelioid carcinoma was noted - from 75% (1997) to 50% (2010) as well as the increased frequency of SCLC from 17% (1997) to 30% (2010) and adenoscarinoma from 13% (1997) to 28% (2010).

P2732

**Occupational exposure to carcinogens and lung cancer: Impact of a dedicated professional disease consultation in a Belgian oncologic centre**

*Anne Pascale Meert, Isabelle Morel, Thierry Berghmans, Ingrid C.S. Toth, Jean Paul Scaliter. Thoracic Oncology and Intensive Care, Institut Jules Bordet, Brussels, Belgium*

**Introduction:** In epidemiological studies, 15% of lung cancers in men and 5% in women are linked to occupational exposure to carcinogens. However, there is a clear under-reporting of occupational lung cancer in Belgium: in 2006, only 67 cases were recognized by the Professional Disease Fund whereas 500 were estimated. The aim of this study was to investigate the correlation between the exposure to radon and lung cancer in patients from the centre counties of Transilvania, Romania.

**Material and method:** We conducted a case-control study, by location of 204 Rn detectors in 78 patients with lung cancer and 126 controls from the centre counties of Transylvania. **Results:** From 78 cases 87% were men, 13% were women, from 126 controls 57% were men, 43% women, 38% of cases were from urban area and 62% from rural area, 39% from controls were from urban area and 61% from rural area, the age average in cases was 65±11 and in controls 57±15, in cases 33% were with a family history of cancer and 13% were in controls. We observed that the magnitude of Rn exposure for cases was 139 Bq/m³ (average) minimum 9 Bq/m³, maximum 750 Bq/m³, geometric mean was 102 Bq/m³. The average for controls was 125 Bq/m³, minimum 9 Bq/m³, maximum 740 Bq/m³, geometric mean was 80 Bq/m³.

**Conclusions:** The Rn concentrations are higher in patients with lung cancer compared with controls. This findings support the implication of Rn in developing lung cancer and the high level of Rn in studied area.

P2734

**Is female gender a protective factor for NSCLC patients? A follow up study of 20 years of 478 patients**

*Jose Chakini, Norris Scaglia, Jose Figueredo-Pinto. Medicine, Pontificia Universidade Catolica do Rio Grande do Sul, Porto Alegre, Brazil*

**Background:** Previous studies reported a better survival rate among females with non small lung cancer (NSCLC). We have previously also registered similar findings. The purpose of this study was to re-evaluate female gender as a protective factor survival in a cohort of patients with NSCLC in a follow up study of 20 years.

**Methods:** In a retrospective cohort study, we examined the survival rates of 478 NSCLC patients who underwent surgical curative treatment at Hospital da PUCRS, in Porto Alegre, Brazil between January 1990 and December 2009. Survival rates were analyzed by Kaplan-Meier plots and by the log rank test. Cox proportional hazards analyses were performed to identify potential confounding factors. The statistical significance was considered as P<0.05.

**Results:** The 5-year survival rate was 55.6% for women and 38.8% for men (P=0.005), when considering the whole group of patients. After adjustment for possible confounding factors (age, TNM stage, histology, tumor size, surgical procedure, smoking load, hemoglobin, and postoperative complications), female gender protective effect persisted only for stage I (survival rates: 75.2% and 47.9%, for women and men, respectively; P<0.007). For subjects in stages ≥II, no significant differences in 5-years survival rates were found. The hazard ratio for females in stage I was 0.95 (95%CI: 1.16 to 3.27, P=0.012), when compared to males.

**Conclusion:** In this 20 years of follow up study, female gender was a protective factor for mortality in patients with NSCLC submitted to surgery with curative intent in stage I when compared to males. This effect is not observed in patients in stage ≥II.

P2735

**A retrospective study of lung cancer in young patients**

*Pradeep Rajagopalan, Douglas George Price, Sivanantham Sasikumar, Ramin Baghui Ravary, Neil Robert Goldsack, Brett Pereira. Respiratory Medicine, Kent and Canterbury Hospital, Canterbury, Kent, United Kingdom*

**Introduction:** Over-representation of women, more advanced disease staging at presentation, better performance status and similar survival figures have been noticed in younger (<50 years) lung cancer patients as compared to the general patient population with the disease. **Objective:** A retrospective study (February 2010) was done to derive clinicopathological data from young lung cancer patients treated in our hospital in the last 5 years. We also compared our findings with National Lung Cancer Audit (NLCA), 2007 in the UK. The NLCA data were considered as a reflector of the patients from all age groups.

**Findings:** 36 patients were identified for the study. Median age was 47 (37-50), 19 (54%) were female. 76% had WHO performance status PS (1) in patients with documented PS. 43% had family history of lung cancer. 89% were current smoker. Histology was achieved in 87%. 68% had non small cell carcinoma (NSCLC) including 40% adenocarcinoma. 24% had small cell carcinoma. 3 had carcinoid. 55% of histology proven NSCLC had stage 4 disease at presentation. 86% had some form of treatment (surgery, chemotherapy or radiotherapy). 6 (18%) had resection.

NLC & Local Data Comparison

<table>
<thead>
<tr>
<th>Male</th>
<th>Female</th>
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</thead>
<tbody>
<tr>
<td>14.1</td>
<td>1.84</td>
</tr>
<tr>
<td>68%</td>
<td>87%</td>
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<tr>
<td>58%</td>
<td>50%</td>
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<tr>
<td>11%</td>
<td>8%</td>
</tr>
<tr>
<td>89%</td>
<td>87%</td>
</tr>
<tr>
<td>51%</td>
<td>8%</td>
</tr>
<tr>
<td>14%</td>
<td>18%</td>
</tr>
<tr>
<td>232</td>
<td>246</td>
</tr>
</tbody>
</table>
Conclusion: Majority of these patients presented with advanced stage disease as in previously reported larger cohorts. Women were a majority but they had a better survival than men. 41% had positive family history suggesting a possible genetic factor. Favourable performance status resulted in higher resection rate and active treatment compared to overall patient population. But this did not lead to better survival.

P2736

Kras mutations in non-small cell lung cancer (NSCLC) - Experiences by routine molecular testing in a German Lung cancer centre

Christian Boch1, Jens Kollmeier1, Daniel Misch1, Andreas Roth2, Torsten Blum1, Wolfram Greuning1, Nicolai Schoenfeld1, Thomas Mannier1, Torsten T. Bauer1 1Department of Pulmonology, Pulmonary Diseases Clinic, Heckshor, HELIOS Klinum Emil von Behring, Berlin, Germany; 2Institute of Pathology, Helios Klinum Emil von Behring, Berlin, Germany

Introduction: More than 20 years ago KRAS mutations were identified but the utility of this information remains vague. Several clinical studies indicate that KRAS mutations are associated with shorter overall survival (OS) in presellected populations. With the routine testing of KRAS mutation in all newly diagnosed NSCLC in our clinic for 14 months, we offer a new perspective.

Methods: From Nov 2009 until Dec 2010, all subsequent biopsies of newly diagnosed NSCLC (n=753) obtained by surgery, routine bronchoscopy or CT guided biopsy were tested for the ability to be analysed by LightCycler Real-time PCR accessing codons 12 and 13 for the presence of KRAS mutations. The obtained data were correlated with the centre-bound database for survival data.

Results: A total of 504 cases with NSCLC, 229 adenocarcinoma (AC), 163 squamous cell carcinoma (SCC) and 112 with other NSCLC were eligible for analysis. Among those, KRAS mutation was present in 73/504 cases (14.5%, male, n=390). The highest frequency of KRAS mutation was observed in AC (61/229 (27%)). Patients with SCC (66/112, 3,7%) and other NSCLC (12/112, 11%) showed KRAS mutations less frequent (p < 0.001). By analysing EGFR mutations in the same population, we detected only one KRAS positive patient with a simultaneous EGFR mutation. By now we did not find a significant difference in OS expressed as mean ± SEM (KRAS negative 378±20 vs KRAS positive 406±20, p = 0.244).

Conclusion: The frequency of KRAS mutations in NSCLC in our unselected cohort is comparable with previous reports. They are more frequent in AC compared to other histologic subtypes. To date we could not confirm any association with OS.

P2737

Characterization of patients with non-small cell lung cancer (NSCLC) relative to its EGFR mutational status

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Introduction: EGFR (Epidermal Growth Factor Receptor) mutations occur in subsets of NSCLC patients. They describe the diverse nature of a patient population in Munich, and show similar rates of activating EGFR mutation in all subgroups.

Methods: From Nov 2009 until Dec 2010, all subsequent biopsies of newly diagnosed NSCLC (n=753) obtained by surgery, routine bronchoscopy or CT guided biopsy were tested for the ability to be analysed by LightCycler Real-time PCR accessing codons 12 and 13 for the presence of KRAS mutations. The obtained data were correlated with the centre-bound database for survival data.

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Conclusion: The frequency of KRAS mutations in NSCLC in our unselected cohort is comparable with previous reports. They are more frequent in AC compared to other histologic subtypes. To date we could not confirm any association with OS.

P2740

Lung cancer screening by CT incidental findings are frequent and often of clinical importance

Zaigham Saghir1, Asger Dirksen2, Jesper Holst Pedersen1, 1Department of Respiratory Medicine, Gentofte University Hospital, Hellerup, Copenhagen, Denmark; 2Department of Thoracic Surgery, Rigshospitalet, Copenhagen, Denmark

Introduction: Incidental findings during CT screening of a large population may cause a substantial burden of additional diagnostic workup and the patients may undergo unnecessary and potentially harmful procedures. Aim: We investigated the extent of significant incidental findings during five years of CT screening for lung cancer in the Danish Lung Cancer Screening Trial (DLCST).

Material and methods: DLCST recruited 4,104 healthy current and former smokers (age: 50-70), who were randomised to either five annual chest CT scans or no intervention. CT Scans were performed supine after full inspiration with caudocranial scan direction including the entire ribcage and upper abdomen with a low dose technique. Two experienced chest radiologists read all CT scans and registered lung nodules as well as incidental findings. Findings were discussed at weekly consultations, and clinical significant findings were defined as referral to relevant departments for further workup, where we followed participants closely by their medical records.

Results: 140 participants (7%) had 148 clinical significant incidental findings localised in larynx (1), thyroid (3) gastro-esophageal (9), breast (16), cardiac (5), mediastinum (12), aorta (28), liver-and-gall-bladder (18), pancreas (6), spleen (1), intestines (2), kidneys (40), skin (2), chest-wall (3) and vertebral column (2). 22 (16%) underwent invasive procedures that lead to a cancer diagnosis in 10 participants. 118 had one or more non-invasive clinical check-ups.

Conclusion: The extent of incidental findings during CT screening of lung cancer is considerable and may lead to diagnosis of clinical significant diseases.

P2741

Evaluation of the effect of sampling of spontaneous sputum over a prolonged period on the sensitivity for lung cancer

Jasmin Hubers1, Danielle Heidenheim1, Judith Herder1, Sjaak Burgers3, Peter Sterk1, Peter Kunst2, Henk Smit1, Pieter Postmus2, Sylvia Duijn1, Peter Snijders1, Gerrt Meijer1, Eigbert Smit2, Erik Thunnissen1 1Pathology, University Medical Center, Amsterdam, Netherlands; 2Pulmonology, Sint Antonius Ziekenhuis, Nieuwegein, Netherlands; 3Pulmonology, Academic Medical Center, Amsterdam, Netherlands

Introduction: Incidental findings during CT screening of a large population may cause a substantial burden of additional diagnostic workup and the patients may undergo unnecessary and potentially harmful procedures. Aim: We investigated the extent of significant incidental findings during five years of CT screening for lung cancer in the Danish Lung Cancer Screening Trial (DLCST).

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Conclusion: The extent of incidental findings during CT screening of lung cancer is considerable and may lead to diagnosis of clinical significant diseases.

P2738

Analysis of EGFR-mutations in a diverse urban patient population

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Background: EGFR-mutations are predictive for EGFR-TKIs in advanced NSCLC, however, not all pts are screened for these mutations. Clinical crite-
These figures were significantly lower for control samples, i.e., 2%, 6%, and 2%, respectively (all P-values < 0.001). Cumulative analysis of RASSF1A methylation, i.e., combining methylation positivity outcomes for day 1-6, and day 1-9, revealed RASSF1A methylation in 39% and 47% of cases, respectively, versus 8% and 8% of controls, respectively.

Conclusion: Our study suggests that spumon collected over multiple successive days results in a gain in sensitivity, at the expense of a small loss in specificity, for the detection of lung cancer.

P2742 Molecular test supporting early lung cancer detection project based on pilot Pomeranian lung cancer screening program Amelia Szymanowasko-Naleń1, Rafał Drzazdziszko2, Malgorzata Jelitno-Gorska1, Witold Ryżman1, 1Department of Clinical Oncology and Radiotherapy, Medical University of Gdańsk, Gdańsk, Poland; 2Department of Allergology, Medical University of Gdańsk, Gdańsk, Poland; 3Department of Thoracic Surgery, Medical University of Gdańsk, Gdańsk, Poland

Introduction: Lung cancer is one of the most common malignant neoplasms worldwide. Only 10% of patients can be cured, mostly due to late diagnosis and high aggressiveness of lung cancer.

Aim: Aim of the Molecular Test Supporting Early Detection of Lung Cancer Project is to perform genetic studies and serum protein studies in order to increase the efficacy of radiological examinations in early lung cancer screening and to define population of particularly high risk of lung cancer development. The project consists of five thematic areas.

Results: Pomeranian Pilot Early Detection Program has been realized from the 17th November 2008. In this project 8000 healthy subjects with high risk of developing lung cancer (age 50-75, at least 20 pack-years) were screened with low-dose CT scanning of the lungs. As a co-project blood samples were taken from those patients who gave informed consent. In the first year of project realization 6836 healthy subjects were screened. In above a half of the cases (53%) at least one pathological alteration in lung tissue was found. Among 186 patients, in whom the lesion was above 1 cm in diameter, in 56 cases lung cancer was diagnosed. Almost 60% of lung cancer cases were in stage IA. 

Conclusion: Pomeranian Pilot Lung Cancer Screening Program and Molecular Test Supporting Early Lung Cancer Screening Project - Molest 2013 are dedicated to define population of particularly high risk of lung cancer development.

P2743 Current screening programs for lung cancer - Are inclusion criteria too rigorous to identify asymptomatic patients?

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Background: Preliminary results from the controlled National Lung Cancer Screening Trial (NLST) indicates a mortality reduction of > 20% in screened patients; high risk being defined as smokers (ex/current) > 55 years old with > 30 pack-years. Recent studies suggest that female smokers develop lung cancer at a younger age and following smaller amounts of tobacco consumption than males. In industrialized countries the incidence of lung cancer is falling in males, but increasing in females. We aimed to assess if the inclusion criteria used in NLST would have identified lung cancer in a cohort of asymptomatic subjects who underwent surgical resections at our tertiary university hospital.

Methods: Patients undergoing lung surgery during the period 2002-10 clinical data from 1043 consecutive patients with lung cancer were prospectively registered. 626 patients (294 females, mean age 68 years, and 332 (53%) males, mean age 64 years), were current or ex-smokers with an average daily cigarette consumption of 1–199 cigarettes per day. There were 41% females, 59% males. The majority of women (53%) were current smokers and 47% ex-smokers. Males smokers and ex-smokers were equal (47%). Females, mean age 68 years, and 332 (53%) males, mean age 64 years, underwent surgery.

Results: Of the 626 patients who underwent surgery, 267 (42%, 131 females, 136 males) had no clinical manifestations of lung disease at presentation, and chest x-rays had been performed for co- incidental conditions. In females, 30/151 (23%) were current or ex-smokers with > 30 pack-years. In males, the corresponding proportion was 65/136 (48%). Applying the NLST criteria, 77% of the females and 52% of the males would not have been admitted to the screening program.

Conclusion: Less than one forth of asymptomatic females who underwent resection for lung cancer would have been included in NLST as their total consumption of tobacco in pack-years was too low. Also, half of symptom-free resected males would have been excluded from screening.

P2744 A study of design an original questionnaire for evaluating risks of lung cancer

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Background: No simple questionnaire has been published, though risk factors of lung cancer were detected in the risk group with 1257 persons (1.28%), while another 4 in the non-risk cohort (0.06%).

Conclusion: The questionnaire is a useful method for self-evaluation.

P2745 Effects of the self-evaluation scoring questionnaire and chest digital radiography in lung cancer screening: A three-year follow-up study

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Background: To assess whether the Self-evaluation Scoring Questionnaire for High-risk Individuals of Lung Cancer combined with chest digital radiography (DR) examinations could detect early lung cancer effectively.

Methods: Subjects with scores over 116 points were regarded as high-risk individuals and underwent DR scans a year from 2007 to 2009. Noncalculated nodules with a diameter over 30 mm, along with enlarged pulmonary hilus and atelectasis, were considered to be positive and subjected to further special examinations. Efficacy of screening protocol was estimated by the 3-year’s results.

Results: Among 1,537 subjects, 13, 11 and 7 ones were diagnosed with lung cancer in the first, second and third year respectively, indicating the detection rate of 2.02% (31/1,537). In addition, 77.42% (24/31) of the patients were in stage I.

Table 1. Self-evaluation scoring questionnaire for high-risk individuals of lung cancer

<table>
<thead>
<tr>
<th>Risk Factors</th>
<th>Classification</th>
<th>Risk Assignments</th>
<th>Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>Male</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Age / Years</td>
<td>30</td>
<td>Female</td>
<td>0</td>
</tr>
<tr>
<td>Smoking Duration / Years</td>
<td>20</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Initial Smoking Age / Years</td>
<td>15</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Family History of Non-lung Cancer Tumors</td>
<td>Yes</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>Depreciation</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Chronic Pulmonary Diseases</td>
<td>Tuberculosis</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Exposure to Cooking Fume / Plates per day * Years</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Years for Working as a Miner</td>
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<td>21</td>
<td></td>
</tr>
<tr>
<td>Exposure to Asbestos / Years</td>
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<td>21</td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Family History of Lung Cancer</td>
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<td>13</td>
<td></td>
</tr>
<tr>
<td>Family History of Non-lung Cancer Tumors</td>
<td>Yes</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Total

506s

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Conclusions: The questionnaire combined with DR scans is an effective approach to detect early stage of lung cancer.