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ABSTRACTS

P4207

Alterations of serum inflammatory biomarkers in the healthy and lung cancer patients before and post chemotherapy

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Introduction: Only 20% of lung cancer patients could be early diagnosed with surgical treatment. Due to the high cost, it is not practical to apply CT scan and pathological biopsy for lung cancer as regular screening tools even in high-risk population. A simple but sensitive and specific assay used for lung cancer diagnosis and prognosis is warranted.
Methods: Serum samples from 55 subjects including healthy people and patients with NSCLC (30 with adenocarcinoma and 13 with squamous cell carcinoma) were collected to measure 40 inflammatory mediators by multiplexed cytokine immunoassays. All patients have completed follow up for up to two years. A series of systematical computational analysis was applied.
Results: The set of 17 cytokines (such as IL-9, CCL16, CXCL10, etc.) prefers to identify adenocarcinoma samples from pool of the population, while the set of 2 cytokines (MSPa and IL-29) prefers to recognize squamous cell carcinoma samples. The decision trees based on these two kinds of biomarkers can both achieve about 80% accuracy in leave-one-out cross-validation. Cytokines like CXCL5, CXCL10 and CCL16 were also found to play important roles in cancer survival. The co-expressed protein interaction network (CEPIN) of cytokines related to adenocarcinoma show dynamic convergent behavior during chemotherapy.
Conclusions: This pattern of inflammatory mediators might be useful for cancer diagnosis, prognosis and evaluation of chemotherapy effects. The results of clustering of five CEPINs supported the adopted chemotherapy is effective for NSCLC patients.
This study was supported by National Basic Research Program of China (973 Program) No. 2012CB933300.

P4208

Anti-tumorigenic effect of age-/diabetes-related advanced glycation end-products in lung carcinoma

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Background: Clinicopathological studies indicated that lung carcinoma progression is impaired by advanced age and diabetes, which are either characterized by accumulation of advanced glycation end-products (AGEs). AGEs result from the non-enzymatic reaction of sugars with proteins in the body and in foods. Therefore, our study aimed at the effect of AGEs on the non-small cell lung carcinoma (NSCLC) progression.
Methods: AGEs were quantified by detecting the AGE fluorescence in plasma samples of NSCLC patients prior to surgery. Experimentally, the tumor effect of circulating AGEs was studied by using NSCLC spheroids and plasma samples increasingly modified with AGEs, and NSCLC-bearing mice of whom elevated AGE level were induced by AGE-enriched food.
Results: High plasma AGE levels were characterized by a later reoccurrence of the tumor after curative surgery and a higher long-term survival rate compared to patients with low levels (25% vs. 47% 5-year-survival, $P = 0.011$). In this regard, *in vitro* studies showed a lower spheroid growth of NSCLC cells in the presence of AGE-modified plasma than non-modified plasma. By *in vitro* application of plasma samples from NSCLC patients or mice with different AGE levels, we also found an inverse correlation between the NSCLC spheroid growth and the plasma AGE level. Moreover, the *in vivo* tumorigenicity assay demonstrated that mice with higher levels of circulating AGEs developed smaller tumors than mice with normal AGE levels.
Conclusion: The plasma AGE level has prognostic relevance for NSCLC patients, in which the tumor growth-inhibiting effect of circulating AGEs might play a critical role.

P4209

Increased levels of circulating interleukin 6, interleukin 8, C-reactive protein, and risk of lung cancer

Marina Petrovic[1], Ivan Cekerevac[1], Gordana Kostic[2], Violeta Iric Cupic[2], Goran Davidovic[2], Zorica Lazic[1], Vojislav Cupurdija[1], Ljiljana Novkovic[1]. *[1]Pulmonary Department, Clinical Center, Kragujevac, Serbia; [2]Clinical for Cardiology, Clinical Center, Kragujevac, Serbia*

Introduction: Previous studies that were based primarily on small numbers of patients suggested that certain circulating proinflammatory cytokines may be associated with lung cancer; however, large independent studies are lacking.
Methods: Associations between serum interleukin 6 (IL-6) and interleukin 8 (IL-8) levels and lung cancer were analyzed among 123 case patients. Associations between biomarkers and lung cancer were estimated using logistic regression models adjusted for smoking, stage, histology, age, and sex. The 10-year standardized absolute risks of lung cancer were estimated using a weighted Cox regression model.
Results: Serum IL-6 and IL-8 levels in the highest quartile were associated with lung cancer (IL-6, odds ratio [OR] = 2.89, 95% confidence interval [CI] = 1.28 to 6.23; IL-8, OR = 2.46, 95% CI = 1.02 to 4.12) and with lung cancer risk (IL-6, OR = 1.93, 95% CI = 0.87 to 2.36; IL-8, OR = 1.62, 95% CI = 1.56 to 2.48), compared with the lowest quartile. Increased IL-6 levels were only associated with lung cancer diagnosed within 2 years of blood collection, whereas increased IL-8 levels were associated with lung cancer diagnosed more than 2 years after blood collection (OR = 2.03, 95% CI = 1.05 to 2.73). The 10-year standardized absolute risks of lung cancer were highest among current smokers with high IL-8 and CRP levels (absolute risk = 7.46%, 95% CI = 4.52% to 10.25%).
Conclusions: Although increased levels of both serum IL-6 and IL-8 are associated with lung cancer, only IL-8 levels are associated with lung cancer risk several years before diagnosis.

P4210

Clinical significance of serum osteopontin levels in lung cancer

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Background: Osteopontin (OPN) is a multifunctional glycoprotein associated with lung cancer (LC) via several pathways including tumour angiogenesis.
Aims and objectives: The aim of our study was to investigate possible associations between serum levels of OPN in patients with LC and clinicopathological variables, VEGF and MMP-9 levels and overall survival.
Methods: We enrolled 51 patients (mean age 66±8.8 years) with primary LC and 30 healthy control subjects. 43 patients were ever smokers and 8 non-smokers, 12 patients had SCLC and 39 NSCLC (18 squamous, 16 adenocarcinoma and 5 NSCLC-NOS) with stage I-II/4, III/18, IV/29. Serum levels of OPN, VEGF and MMP-9 were measured by ELISA.
Results: Patients with LC had statistically significantly higher serum OPN levels than controls (45.9[10.5-266.8] vs 16[6.8-29.8] ng/ml, $p<0.0001$). ROC analysis showed that for OPN levels >23.8 ng/ml, sensitivity for detection of LC was 80.4% and specificity was 86.7%. OPN levels were also found higher in smokers ($p=0.019$) and in older patients ($p=0.026$). Moreover, patients with squamous LC had statistically significantly higher OPN levels compared to patients with adenocarcinoma. Additionally, patients with serum OPN levels lower than median value (<45.9 ng/ml) had significantly better overall survival than those with higher levels (524 days vs. 306 days, $p=0.01$) and a 1-year survival rate of 80% vs. 37%. Finally, OPN levels were positively associated with VEGF levels ($r=0.44$, $p=0.001$).
Conclusions: OPN levels were increased in patients with LC, and higher levels were correlated with worse survival, therefore suggesting a possible diagnostic and prognostic value of OPN in patients with LC.

P4211

Investigation of survivin gene polymorphism in non-small cell lung cancer patients (NSCLC)

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Introduction and aim: Survivin gene is one of the first reported inhibitors of apoptosis proteins (IAPs), which is an important family of proteins that regulate apoptosis. A common polymorphism at the survivin gene promoter (-31 G/C) has been shown to influence survivin expression and the risk for cancer development. Purpose of this study reports, relation between Turkish population who have survivin polymorphism and NSCLC also; its relevant with diseases's development and prognosis.
Methods: 146 NSCLC cases and 98 healthy control cases who were diagnosed at Yedikule Chest Diseases and Chest Surgery, Training and Research Hospital third clinic were included in this study. Pulmonary function test and routine biochemical analysis were done for all voluntaries. PCR-RFLP technique was used for genotyping.
Result: Genotype distrubition of Survivin gene's -31G/C region were detected (n=146) %77.4 GG (n=113), %.18.5 GC (n=27), %4.1 CC (n=6); at patient group and (n=98) % 6.1 GG (n=56), %47.5 GC (n=34), % 46.4 CC (n=8) (*p=0,003), at control group; -644T/C region were detected (n=146) %40.4 TT (n=59), %.48.6 TC (n=71), %11.0 CC (n=16); at patient group and (n=98) % 55.1 TT (n=54), %40.8 TC (n=40), % 4.1 CC (n=4) (*p=0,031), at control group; -625G/C region were detected (n=146) %49.3 GG (n=72), %.39.1 GC (n=57), %11.6 CC (n=17); at patient group and (n=98) % 57.1 GG (n=56), %32.7 GC (n=32), % 10.2 CC (n=10) (p=0,484) at control group.
Conclusion: These results show that Survivin gene -31 G/C polymorphism causes predisposition to lung cancer development in Turkish population.