

Materials of Conferences

**CLINICAL-IMMUNOLOGICAL PARALLELS
WHEN CHRONIC OBSTRUCTIVE
PULMONARY DISEASE IN LUNG CANCER
PATIENTS**

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Quantity of lung cancer (LC) patients and death rate from it is growing from year to year. These facts predetermine people's interest to research of factor estimate assisting tendency to developing of the disease. Medical- epidemiological researches confirm negative role of carcinogen system the leading position among which get metabolites- the smoking products.

The smoking factor as negative trigger unites a number of bronchopulmonary diseases and first of all chronic obstructive pulmonary disease (COPD) and LC as cancer is almost always developed with long term smokers with COPD. That's why it is seen rational to research clinical-immunological differences and similarities COPD and LC as diseases developing on the basis of common target tissue: LC and COPD are diseases with etiologically significant environmental factors.

There is a lot of data confirming the role of chronic inflammation in cancer genesis generally and LC in particular (Baron et Sandler, 2000; Garcia-Rodriguez LA, Huerta-Alvarez C, 2001). It is proved that proliferative and cancerous tissue transformation and also chronic inflammation are dependent on the level of immune alterations, are provided by system alterations of immunocompetent cells, their relations on different levels of pathologic process (Paltsev M.A., Ivanov A.A., 2003; Shvartsburd P.M./ 2006; Macarthur et al., 2004)

It is adjusted that there is estimated cancerous potential when there're different disregenerated changes of lung epithelia against chronic inflammatory lung disease (Kogan E.A., 2003). This is explanation of a fact of often developing cancer against COPD when dysplastic changes and metaplasia of bronchial epithelia are clinical implications.

It's important to mark that the appearance of chronic inflammatory in bronchopulmonary tract with dominating concentration of CD 8+ lymphocytes, neutrophils, macrophages is typical for COPD. Moreover it is typical for COPD clinical accompaniment in the form of progressive bronchial obstruction against anatomical airways remodeling (Jeffery P.K., 2001).

Despite the known fact of COPD and LC development with heavy smokers, till now

there are just singular facts in scientific literature pointing at association of COPD with high risk formation of LC (Kishi K. et al., 2002; Mannino M.D. et al., 2004).

The objective of the research is a clinical-immunological estimate of COPD patients, including those with LC formation.

Materials and methods

Clinical-immunological examination is done for 30 patients with COPD medium severity level and 30 patients with COPD medium severity level with clinical- roentgenologic and histologically confirmed LC in the period from February to May 2009. Male patients aged 40-60 years old with average smoking experience- 20 years are included in the research.

Control group for laboratory research included 24 almost healthy men – volunteers aged 40-60 years old.

There were detected content of main population and subpopulation of lymphocyte(CD3+CD16-, CD3+CD4+, CD3+CD8+, CD4+ CD8+, CD19+, CD3-CD16+, CD3+CD16+, CD3-CD8+, CD4+CD25+, CD25+ CD4+95+, CD95+, CD4+HLADR+, HLADR+, CD19+CD23+) according to method of ductal cytofluorometry by using monoclonal antibodies, phagocytic activity of neutrophils with cell ability to absorb latex elements and level of B-cell stimulatory factor 2(BSF-2) in blood serum.

Research results

It is known that T-lymphocytes initiate and regulate immune response, perceive antigens, which in their turn influence their activity and population increase. Content of T-lymphocytes in blood is instable on depends on body state (stress, chronic or acute inflammation) (Hodge S.J. et al., 2003).

Characteristics of some immunologic parameters with patients with chronic obstructive pulmonary disease are presented in table 1.

Table 1. Immunological results with COPD patients and control group (M±m)

Result	Control group	COPD patients	
		Without LC	With LC
CD3- CD16+	0,18±0,01	0,476±0.086*	0,426±0.048*
CD4+CD25+	0,12±0,006	0.31±0.057*	0,27±0,026*
CD95+	0,03±0,018	0.227±0.076*	0,248±0,029*
Phagocytic index	40,0±2,1	50,5±4,77**	43,9±2.95**
BSF-2	2,0 ±0,02	9,529±2,97*	14,435±2,1*

– differences are true in comparison with control group (-p<0,01; ** - p<0,05).

Interpreting results from table 1, which include the most changed immunological markers with COPD patients, the following is marked.

CD16+ is membrane antigen of natural killer (NK). Their unique peculiarity- is the ability to spontaneously, without antigen presensitization, kill virus-infected, oncotic and other types of changed cells. It is also known that antigen activation of T-cells leads to interleukin-2 production increase and expression of its receptors on cell surface. It may be a sign of T-lymphocyte activation and their preparation to proliferation. Receptions to interleukin-2, expressed mainly at activated T-lymphocyte surface is characterized as CD25+ - antigens (Kubysheva N.I. etc., 2007)

Our results show simultaneous growth of CD16+ and CD25+-antigen ($p < 0.01$), that may show the development of hyperergic immune response influenced by external action.

CD95+ -anigen (Fas) is a cell reception triggering apoptosis (Krueger A. et al., 2003). CD95 – ligand (FasL) mediate the death of cells sensitive to apoptosis by connecting with CD95+ -anigen. CD95 – ligand is presented in excess on activated T (CD8+ and CD4+) – and B – lymphocytes, NK, lung cells (Ricci – Vitiani L. et al., 2000).

As a part of the study we've discovered tendency to cell number growth, expressing CD95+ - antigen ($p < 0.01$).

Apoptosis, being a physiological form of cell death, plays key role in inflammation resolution. High apoptosis of activated T-cells may lead to homeostasis imbalance, leading to overload of local ability of phagocytes and defective clearance. According to Hodge and co-authors (2003), this may potentially lead to saving apoptosis material, additional alteration and inflammation progression. Thus, growth of CD95+ mononuclear with obstructive pulmonary disease may show inflammation progression and correspondingly unfavorable disease.

Phagocytic index (neutrophil percentage, taking part in phagocytosis) is also increased in comparison to control group. Phagocytosis- is an important component of antibacterial defense. Initial defense reaction to any infection depends on recognition of general components for different germs with the help of special cell receptors, which differ from antigen-specific receptors T- and B- cells. Numerous components of germ cells may cause phagocyte chemotaxis in the centre of infection (Roitt A. etc., 2000).

Our research has also shown the growth of BCF2 in blood serum. BCF2 is pro- and anti-inflammatory delirient, which is the main activator of synthesis of protein of acute phase hepatocyte; it helps involving kidney mesangial cells into inflammatory process, B- and T- lymphocytes and takes part in proliferation induction of the least (especially in the case of B-cells and plasmocytes); acts upon hematopoiesis stimulating its early stages; upon neuroendocrinal system; helps developing fever and adrenocorticotrophic hor-

monone secretion. Moreover it suppresses production of interleukin-1, tumor necrosis factor- α and prostaglandin E2 with macrophage, by that helping accomplishment of inflammatory reaction. Stimulatin production of adrenocorticotrophic hormone, BCF2 takes part in development of stress reactions also connected with inhibitory action glucocorticoids (Yarilin A.A., 1999).

Thus COPD and LC have the same characteristics of chronic inflammatory process, in formation of which, probably, other components of inflammatory cascade.

Taking into consideration commonality of the participant pathologic process – target tissue, presence of common markers, reacting more significantly (CD3- CD16+, CD4+CD25+, CD95+, HLA -DR+, Phagocytic index, BCF2), the obtained data can be considered as the proof of pathogenetic commonality of COPD and LC and consider them as stages of the same process. Moreover COPD can be considered premorbid stage of LC.

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PSYCHOPHYSICAL ASPECTS OF MAINTAINING THE HEALTH OF STUDENTS WITH LOW ADAPTIVE CAPACITY

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Current socio-economic situation confronts domestic scientists and the public a number of challenges. One of the most pressing - the deterioration of the health of schoolchildren, as confirmed by the medical, psychological, pedagogical and sociological studies. Begun to address this problem, it must be at least two aspects. One is the initial low, significant numbers of children starting their school. Particularly at risk are students with existing mental and physical health disorders. The number of such students in Magnitogorsk, according to statistics is 18% of the total number of children of school age.

The second aspect is a guide to the most, unfortunately, the consequences for the mental and physical health of schoolchildren learning outcomes of the child in school. There is a growing range of diseases of schoolchildren, which can be regarded as occupational diseases of modern schoolboy. Institutions correctional orientation of one of the most important tasks, we can say mission, consider creating the necessary conditions for realization of the rights of students with disabilities to receive education and comprehensive treatment, adjustment and social adjustment. The result of such activities should not only maintain but also improve the quality and quantity of school health, including through the establishment of key social, psychological, speech and cognitive skills of children.

Rehabilitative institutions are ready to share their unique Expertise on maintaining the health of pupils. Thus, for the special (correctional) boarding school № 3 of the city of Magnitogorsk (head Koblova TN) 2010 is a landmark, and now according to a preliminary analysis of the innovative projects we can

speaking about positive results. For most disturbing fact of residence of students with obviously reduced adaptive potential in the regular school. The reason for this situation is often spontaneous, forced integration.

In the regular school for teaching children with low intellectual development, moving towards reducing the program requirements, the acknowledged underreporting intellectual abilities of children, thereby reducing, and often increasing the risk of psychosocial maladjustment of the child. At the same time losing sight of the constructive possibilities, consisting in the development and consolidation of healthy psychological and physiological skills.

Thus, the modern school requires methods and technologies, aimed at learning self-control, self-knowledge and self-regulation in children with impaired intellectual development, and educated both in terms of differentiated instruction, and at the various models of integration.

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THE YOUNG MEN'S BACTERIAL AND VIRUS PNEUMONIAS CLINICAL COURSE PECULIARITIES AND SPECIAL FEATURES

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The community – acquired pneumonia is being left by the frequent acute infectious disease and the illness not only in the Russia, but and throughout the whole world. The lethality at the pneumonia everywhere has its tendency to the following increase. So, it has been become more difficult to be made the diagnosis of the pneumonia, because of the clinical and the laboratory «golden standard» absence at the half number of those, who has been fallen in with the illness. Thus, it has been become more difficult to be cured from the pneumonia, because of the sick people specific proportion and the specific share rise with the flora resistance to the antibiotics.

The main paper's target has been the pneumonias clinical course, the diagnostics, and the medical treatment peculiarities and the special features study and the examination, having developed against the background of the acute virus and the respiratory diseases (AVRD) epidemical attack in the spring.

Materials and methods

The pneumonias development, the diagnostics, the clinical course and the medical treatment peculiarities and the special features at the persons of the young age at the AVRD seasonal epidemical attack, having been before their illness in the organized community have already been analyzed. This analysis has been carried out at the 160 men at the age of from