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DIAGNOSTIC ROLE OF SPONTANEOUS AND INDUCED ENHANCEMENT OF CYTOKINES IL-4, IL-6, IL-8, IL-10 BY BLOOD LEUKOCYTES IN PATIENTS WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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**DIAGNOSTIC ROLE OF SPONTANEOUS AND INDUCED
ENHANCEMENT OF CYTOKINES IL-4, IL-6, IL-8, IL-10 BY BLOOD
LEUKOCYTES IN PATIENTS WITH CHRONIC OBSTRUCTIVE
PULMONARY DISEASE**

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Resume

Chronic obstructive pulmonary disease (COPD) is a socially significant disease. The study studied the spontaneous and induced enhancement of cytokines IL-4, IL-6, IL-8, IL-10 by blood leukocytes in patients with chronic obstructive pulmonary disease. It has been shown that the leading role in the formation of the inflammatory process in COPD belongs to the cytokines IL-6, IL-8. Cytokine production mainly reflects the reserve capacity of immunocompetent cells in response to pathogenic factors.

Key words: Chronic obstructive pulmonary disease (COPD), cytokines, immunopathogenesis.

**ДИАГНОСТИЧЕСКИЙ РОЛЬ СПОНТАННОГО И
ИНДУЦИРОВАННОГО УСИЛЕНИЕ ЦИТОКИНОВ IL-4, IL-6, IL-8, IL-10
ЛЕЙКОЦИТАМИ КРОВИ У ПАЦИЕНТОВ С ХРОНИЧЕСКОЙ
ОБСТРУКТИВНОЙ БОЛЕЗНЬЮ ЛЕГКИХ**

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Резюме

Хроническая обструктивная болезнь легких (ХОБЛ) - социально значимое заболевание. В исследовании изучали спонтанное и индуцированное усиление

цитокинов IL-4, IL-6, IL-8, IL-10 лейкоцитами крови у пациентов с хронической обструктивной болезнью легких. Было показано, что ведущая роль в формировании воспалительного процесса при ХОБЛ принадлежит цитокинам ИЛ-6, ИЛ-8. Продукция цитокинов в основном отражает резервную способность иммунокомпетентных клеток в ответ на патогенные факторы.

Ключевые слова: Хроническая обструктивная болезнь легких (ХОБЛ), цитокины, иммунопатогенез.

**SURUNKALI OBSTRUKTIV O'PKA KASALLIGI BO'LGAN
BEMORLARDA IL-4, IL-6, IL-8, IL-10 TSITOKINLARINING
LEYKOTSITLAR ORQALI SPONTAN VA INDUKTSIYALANGAN
O'ZGARISHLARI DIAGNOSTIK ROLI**

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Rezyume

Surunkali obstruktiv o'pka kasalligi (KOA) ijtimoiy ahamiyatga ega kasallikdir. Tadqiqotda surunkali obstruktiv o'pka kasalligi bo'lgan bemorlarda qon leykotsitlari tomonidan IL-4, IL-6, IL-8, IL-10 sitokinlarining o'z-o'zidan va induktsiyalangan kuchayishi o'rganildi. KOA da yallig'lanish jarayonini shakllantirishda etakchi rol IL-6, IL-8 sitokinlariga tegishli ekanligi ko'rsatilgan. Sitokin ishlab chiqarish asosan patogen omillarga javoban immunokompetent hujayralarning zaxira qobiliyatini aks ettiradi.

Kalit so'zlar: O'pkaning surunkali obstruktiv kasalligi (O'SOK), sitokinlar, immunopatogenez.

Relevance

Chronic obstructive pulmonary disease (COPD) is characterized by airway obstruction and chronic airway inflammation [1,2]. According to the 2018 Global

Initiative for Chronic Obstructive Pulmonary Disease, COPD continues to increase every year. Numerous studies are devoted to the study of the pathogenetic mechanisms of COPD [4]. Nevertheless, many pathogenetic issues of the formation and development of the process of chronic airway inflammation in COPD, especially complicated by chronic heart failure, remain controversial [3]. The main cytokines in the development and maintenance of inflammation in COPD are mediators such as interleukin-8 (IL-8) and interleukin-6 (IL-6). In response to pathogens entering the body. Cytokines have a variety of biological activities and help to interact from cell to cell for immune and inflammatory effects.

Purpose and work. To study the diagnostic value of peripheral serum cytokines, in particular the importance of the production of interleukins (IL-6 and IL-8) by immunocompetent cells in patients with chronic obstructive pulmonary disease.

Material and methods

In the pulmonology department of the Samarkand Regional Multidisciplinary Medical Association, 110 patients with COPD and CHF were examined. The diagnosis was confirmed according to the WHO international classification (ICD-10, heading J84.9). All patients were divided into 2 groups: group 1 - COPD and CHF (70), group 2 - patients with chronic heart failure (40). All clinical, biochemical and laboratory studies were performed using standard methods. The control group consisted of 20 apparently healthy individuals. The obtained data were transferred for statistical processing to a personal computer using software developed in the EXCEL package using a library of statistical functions.

Result and discussion

To determine the immunological content of IL-6 in the examined patients with COPD, she showed that its level in the general group of the examined was 33.2 ± 1.8 pg / ml and significantly exceeded the values typical for practical health. individuals (16.5 ± 1.6 pg / ml, $p < 0.01$).

Comparing the studied parameters in groups of patients with different types of COPD and chronic heart failure, it was found that the highest levels of IL-8 were registered among patients with acute COPD. The content of IL-8 in this group was 38.1 ± 2.91 pg / ml, which is 3 times higher than in the control group. In contrast, IL-8 levels are relatively low in chronic heart failure.

Thus, when determining the results of the analysis of the results in the number of patients with COPD, the level of IL-6 is 83.9 ± 3.51 pg / ml, which is 6.7 much higher than in the group of practically healthy people. (59.8) ml, $r < 0.01$). It was found that levels of IL-6 varied significantly in comparable groups of patients with different stages of COPD. This indicator significantly differs from the indicators of the health group (59.8 ± 6.7 pg / ml; $r < 0.01$) and in patients with chronic IBL (124.6 ± 9.0 pg / ml). Was highest in patients. ml; $r < 0.01$). In patients with subacute COPD, the level of IL-6 was twice as high as in the control group ($r < 0.02$).

Therefore, the results obtained indicate that all tested clinical variants of COPD are characterized by an increase in the number of patients with IL-8, but the prevalence of humoral allergic mechanisms in the pathogenesis of the disease is accompanied by the highest level of this anti-inflammatory cytokine, which significantly differs in severe COPD ($16, 5 \pm 1.6$ pg / ml, $p < 0.05$ compared to 38.1 ± 2.39).

When studying the serum content of the observed contingent of patients with IL-6, the following features of this indicator were observed depending on the severity of COPD.

Interestingly, 5 (10%) patients had low IL-8 values for spontaneous induced production (in these patients, the severe course of COPD was often exacerbated and was severe with clinical symptoms). Probably, the decrease in the level of production of induced IL-8 is primarily unpredictably unfavorable, since the body's defenses against infectious diseases are reduced and the processes of destruction of lung tissue (emphysema, bronchiolitis, irreversible obstruction) prevail.

Conclusions

Inflammation in COPD is immune due to the involvement of various cytokines in the pathophysiological process, including IL-6, IL-8. Patients with COPD are characterized by an increase in the production of spontaneous and induced IL-6, IL-8, even during the period of remission of the disease. The ratio of pro-inflammatory and anti-inflammatory cytokines is different both during the progression of the disease and during the period of remission.

The development of bronchial remodeling and irreversible obstruction may be associated with an increase in the production of IL-6 and IL-8, which are also an important factor in the pathogenesis of COPD. Cytokine production reflects the functional reserve capacity of immunocompetent cells for pathogens (smoking, bacteria, viruses), which increases when complicated by chronic heart failure, therefore, cytokine testing is a method for determining the type of airway inflammation in patients with COPD., May more accurately reflect the nature and weight ... Cytokines contribute to the clinical development of the disease in response to therapy, which must be taken into account when choosing a method for treating patients with COPD.

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