Procedia of Social Sciences and Humanities

Proceedings of the International Conference on Community Education, Economics, Psychology And Social Studies (ICCEEPS 2022)

Correlation Analysis Of Clinical And Immunological Parameters In Patients With AD, COPD, AND ACO

FayzullaevaN.Ya.; Raufov A.A.
Bukhara State Medical Institute, Bukhara, Republic of Uzbekistan

Alesherraufovphd@gmail.com

Relevance: Due to the significant prevalence of chronic nonspecific lung diseases and the high level of disability, one of the most important tasks of healthcare is the prevention and effective diagnosis, as well as the treatment of patients withchronic diseases of the lower respiratory tract. Asthma and chronic obstructive pulmonary disease (COPD) are a major public health problem and a leading cause of morbidity and mortality worldwide. Asthma and COPD are the most common chronic respiratory diseases, each with a specific pathophysiology. Usually, asthma is characterized by chronic inflammation of the airways with reversible symptoms, while COPD is characterized by persistent respiratory changes in the bronchopulmonary system. However, patients can sometimes have clinical features of both diseases, and this condition is called asthma-COPD overlap (ACO). recommended by the joint guidelines of GINA (Global Strategy for the Management and Prevention of Asthma) and GOLD (Global Initiative for Chronic Obstructive Pulmonary Disease). According to this guide, ACOis characterized by "permanent airflow limitation with some features of asthma and COPD."

Numerous population-based studies have been conducted to estimate the prevalence of ACOs worldwide, especially in the US and Europe. However, the studies differ greatly. The prevalence of ACO in these studies varied widely from 0.3% to 5.0% in the general population, from 3.2% to 51.4% in patients with asthma, and from 12.6% to 55.7% in patients with COPD.

According to many authors, the cause of overlap or layering of bronchial asthma and chronic obstructive pulmonary disease are various immune disorders that cause a decrease in the body's resistance to microbial infection. A group of other scientists believe that ACO has a different combination of immune disorders, which is a consequence of the development of two separate pathologies. In some cases, Th2-type atopy and inflammation of the airways, eosonophilia, elevated IgE levels, with the participation of cytokines such as IL-4, IL-5 and IL-9, can be observed in patients with ACO. And in other patients with ACO, there may be signs of COPD, neutrophilia and an imbalance of cytokines such as IL-6, IL-8 and tumor necrosis factor. Studies of the cytokine profile and identification of the nature of the immune response will optimize treatment,

Purpose of the study:to identify the most important correlations of clinical and immunological parameters in patients with BA, COPD and ACO.

Materials and methods of research: We have studied clinical and immunological parameters in 159 patients with BA, COPD and ACO.

Of 159 patients: 62 patients were diagnosed with bronchial asthma, 67 patients with

ISSN 2722-0672 (online), https://pssh.umsida.ac.id. Published by Universitas Muhammadiyah Sidoarjo

COPD, 30 patients with an overlap of asthma and COPD

The diagnosis was established according to clinical and functional data in accordance with the international consensus (GINA-2021) for the diagnosis and treatment of bronchopulmonary diseases. The diagnoses were verified on the basis of a thorough history taking, clinical, laboratory (general blood count, urine), biochemical blood test, bacteriological examination of sputum, instrumental (chest x-ray, electrocardiography, spirography, peak fluometry). Particular attention was paid to the prescription of the pathological process, past and concomitant diseases, and the tendency to allergic reactions.

The inclusion criteria for the study were patients with an established diagnosis of ACO aged 18 to 75 years.

Exclusion Criteria:

- heart disease (acute myocardial infarction)
- the presence of cerebrovascular diseases (stroke, transient ischemic attacks
- malignant neoplasms
- severe kidney or liver failure
- Pregnancy or breastfeeding in women
- severe endocrine pathologies
- severe autoimmune condition

Quantitative assessment of the levels of IL-4, IL-8, TNFα, IFNγ was carried out using test systems (LLC "Cytokin", St. Petersburg) by enzyme-linked immunosorbent assay.

Statistical processing of the obtained data was carried out by the method of variation statistics according to Fisher-Student andused Pearson's χ^2 test.

Research results:

We carried out a correlation analysis of clinical and immunological parameters in the examined patients in the BA group; 16 relationships were identified, of which 10 (r=0-0.3) were positive and 6 were negative.

Thus, IL-4 has 1 direct (r=0.27) relationship with eosinophils and 1 inverse relationship (r=-0.27) with lactoferrin. IL-8 has 2 direct links with TNFα (r=0.18), vitamin D (r=0.17) and 2 reverse links with IFNγ (r=-0.31), lactoferrin (r=-0.12) . TNFα has 4 direct relationships with such indicators as IgE, CRP, vitamin D and fibrinogen (from r = 0.11 to r = 0.2), in turn, interferon gamma has one direct relationship with lactoferrin. The obtained values of immunoglobulin E were also in direct relationship with CRP and vitamin D (r=0.18). CRP also had a direct relationship with eosinophil (r=0.13). Lactoferrin has 3 relationships, all of which are negative with vitamin D, fibrinogen and eosinophil (r=-0.11). And the latter, in turn, have a direct relationship with each other (r=0.17).

In the group of patients with COPD, 22 correlation relationships were identified, of which 11 were positive (r=0-0.5) and 10 were negative values.

Direct correlations were found between the following indicators: 1) IL-4 with vitamin D (r=0.13); 2) IL-8 with TNFα, CRP and vitamin D (r=0.1-0.16); 3) TNFα with IgE and eosinophils (r=0.15-0.17); 4) IFNγ with lactoferrin (r=0.13); 5) IgE with fibrinogen and eosinophils (r=0.12-0.13); 6) CRP with fibrinogen and eosinophils (r=0.21-0.23). It should be noted that the obtained inverse correlations were not in all indicators and ranged from r=-0.11 to r=-0.33. So, IL-4 with IFNγ and lactoferrin, IL-8 also with IFNγ and lactoferrin, IFNγ has 3 relationships with CRP, fibrinogen and eosonophylls. The C reactive protein has one bond with lactoferrin. And vitamin D and eosinophils have one inverse relationship with lactoferrin, respectively.

Further, a correlation analysis of clinical and immunological parameters was carried out in the group with ACO.

In the course of studying the correlation values between indicators in the PBAH group, 33 relationships were identified, of which 22 were positive and 11 were negative.

ISSN 2722-0672 (online), https://pssh.umsida.ac.id. Published by Universitas Muhammadiyah Sidoarjo

Direct correlation was observed within r=0-0.3 for 14 links and r=0.3-0.5 for 8 links. The r=0-0.3 value was between relationships; IL-4 and TNFα, IgE, CRP, eosinophils; IL-8 and CRP, vitamin D, eosinophils; TNFα and fibrinogen, eosinophils; IgE with vitamin D, fibrinogen CRP and eosinophils; vitamin D and fibrinogen, eosinophils. And the value of r=0.3-0.5 was in IL-4 and IL-8, fibrinogen; IL-8 with IgE and fibrinogen; TNFα with IgE, CRP; IgE with CRP; fibrinogen with eosinophil.

In contrast to the groups with bronchial asthma or COPD, in this group the number of inverse correlations is greater and ranges from r=-0.12 to r=-0.41. Of the 11 relationship values r=-0.3 to 0 occurs in 10 relationships between IL-4 with IFNγ, lactoferrin; IL-8 with lactoferrin; TNFα with IFNγ, lactoferrin; IFNγ with IgE, CRP, fibrinogen and eosinophils; lactoferrin with fibrinogen. And the values of r=-0.5 to -0.3 are found in only one relationship - between IL-8 and IFNγ (r=-0.41).

Findings: Thus, the analysis of correlation relationships between 10 clinical and immunological parameters revealed that in all groups studied (BA, COPD and ACO) 71 weakly significant correlation relationships were recorded. In particular, 16 relationships were found in the asthma group, 22 relationships in the COPD group, while 33 relationships were identified in the ACO group, and IL-8 and IFNγ were subject to the greatest changes. This may indicate complex immunological mechanisms for the development of these pathologies, which lead to deeper changes in the bronchopulmonary tree and a severe course of the disease.

REFERENCES

1. Наимова Ш. А., Латипова Н. С., Болтаев К. Ж. Коагуляционный и тромбоцитарный гемостаз у пациентов с ревматоидным артритом в сочетании с сердечно-сосудистом заболеваением //Инфекция, иммунитет и фармакология. – 2017. – №. 2. – С. 150-152.
2. НаимоваШ. А. ТАЪЛИМСОҲАСИДАГИИННОВАЦИОНПЕДАГОГИКФАОЛИЯТНИНГ АҲАМИЯТИ //Ta'limfidoyilari. – 2022. – Т. 14. – №. 1. – С. 103-107.
3. Ходжиева Г. С., Наврузов Р. Р. Синдром Жильбера и особенности течения функциональных заболеваний билиарного тракта //Вестник Совета молодых учёных и специалистов Челябинской области. – 2017. – Т. 1. – №. 1 (16). – С. 44-46.
4. Ходжиева Г. С., Жарылкасынова Г. Ж. Фармакоэкономика и комплаенс пациентов как важнейшие составляющие успешной терапии железодефицитной анемии //ЎЗБЕКИСТОН РЕСПУБЛИКАСИ СОҒЛИҚНИ САҚЛАШ ВАЗИРЛИГИ ТОШКЕНТ ТИББИЁТ АКАДЕМИЯСИ. – 2020. – С. 48.
5. Ходжиева Г. С. Интразональность и специфика течения функциональных заболеваний билиарного тракта при синдроме Жильбера //Научный форум: Медицина, биология и химия. – 2018. – С. 64-68.
6. Khodjaeva D. I. MAGNETIC-RESONANCE IMAGING IN THE DIAGNOSIS OF BREAST CANCER AND ITS METASTASIS TO THE SPINAL COLUMN //Scientific progress. – 2021. – Т. 2. – №. 6. – С. 540-547.

ISSN 2722-0672 (online), https://pssh.umsida.ac.id. Published by Universitas Muhammadiyah Sidoarjo