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Monitoring of Immune Parameters in Patients with Bronchial Asthma in Tetovo Area

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Abstract: ***From research done to monitoring of immune parameters in patients with bronchial asthma in Tetovo area, shows that of the analyzes of immunological parameters: total IgE, specific IgE and PCR in patients, the final results of the first etape (May 2010), concluded that the total IgE in to 15-45 age group is higher in females. Specific IgE is higher in the age group of 46-75 years and also the highest values observed in females aged 14-45. Regarding PCR, higher values are found in the age group of 46-75 years. After applying the therapy in the period September-October 2010, the total IgE values are sitting to all age groups, except for males of 15-45 and 46-75 age group. The value of specific IgE are sitting to all age groups to both sexes, except for females in the age group of 0-14 years. In the case of PCR, after applying the therapy, resulting lower values of all age groups, except for women in the 15-45 age group, where values remain unchanged .***

Keywords: age groups, bronchial asthma, IgE, immunoglobulins, immune system.

1. Introduction

Allergies is a hostile reaction of the immune system to protect the body from foreign agents and toxic pathogens such as chemicals, toxins, mold, food, viruses, bacteria and other microorganisms.[4,6,10] Defense reaction of the body's function is to protect the organism from the initial contact with allergens and to immunize the body from repeated contact with the same. All allergic reactions are unexpected from initial contact phase without If signs, during which formed a special class of IgE antibodies.[5,7] With repeated contact with allergens that cause reaction, these IgE antibodies react with allergens and lead (from mast cells) to release mediators such as histamine, leucotrine, prostaglandin, etc.., And lead to allergy symptoms.[1] When an allergic reaction occurs, allergens that have provoked it, can be identified by determining specific IgE antibodies in blood serum.

Immunoglobulins (Ig)[9] are glycoprotein molecules produced by plasma cells (plasma), in response to an antigen (immunogen), to protect the organism from the same. Known to 5 immunoglobulin class known as G, A, M, D and E, which are distinguished by their molecular weight, electric charge, amino acid composition and their biological properties.[10] All immunoglobulins are built from the same basic unit, and the four chains of two identical light chains (23kD) and two identical heavy chains (50-70kD). Immunoglobulins within a given class are very similar to the constant regions of the heavy chains.[7,11] Distinguished:

1 IgG- heavy chains Gama
2 IgM- heavy chains Mu
3 IgA- heavy chains Alpha
4 IgD- heavy chains Delta
5 IgE- heavy chains Epsilon

The organs that are affected by allergic symptoms

Allergies manifested mainly in the respiratory tract, digestive tract, skin or mucous membranes of the eye, nose etc..[8] The most serious complication that occurs in this case is bronchial asthma, this disease that affects all age groups, without sparing even small children.[12]

Bronchial asthma is a chronic obstructive disease of the airways, which causes serious breathing problem. Characterized by a strong immune reaction and chronic inflammation of the tracheo-bronchial system.[3] The disease manifests itself in episodes, i.e. acute exacerbations, which are replaced with periods during which no symptoms of asthma, to asthmatic attack comes as the deteriorating (**reziltat)** inflammation result, because it is present in its environment any irritating or provocative factor of asthma.[2]

2. The Aim of the Research

The research was conducted at the Clinical Hospital of Tetovo, internal diseases department, Center COPD (chronic obstructive pulmonary disease), in 142 patients diagnosed surrounding Tetovo with bronchial asthma during May-October 2010. The study was conducted in two stages involving the first stage conducted in May and the second stage conducted in the months September-October. During this period, among others are also analyzed immune parameters such as **total IgE, specific IgE** and **PCR**.

3. Material and Methods

In this research included 142 outpatients with allergic problems tract of upper and lower respiratory with bronchial asthma. Immunological analyzes were performed at the Clinical Center Diagnostic Laboratory University of Tetovo and University of Skopje.

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Patients are classified and investigated by gender and age groups, and it:

Age group **I- 0** to**14** years
Age group **II -15** to **45** years
Age group **III -46** to **75** years

Methods of determining the immunoglobulin

The presence of total immunoglobulin was determined in blood serum by on direction radial immunodiffusion method. Production of antibodies has shown the existence of normal humoral immunity. The ability of creating the anti assessed in two ways: indirectly, by determining the titer of so-called natural antibodies and certain increase in titer after immunization of specific anti-bodies.[13] Titers determined more often with the help of tests precipitation, agglutination and with the help of anti-bodies marked with radioactive isotopes, enzymes or fluorescent dye. Determination of **total IgE** provides information on allergic presenzibilizimin and confirms or excludes the diagnosis of allergic disease. It used test (**SM SERO- MedTM Rapid test- ALLERGIE)** and **ELISA test.**[14] Statistical methods for data processing are performed by **SAS statistical package**.

4. Results

According to the data obtained from analysis of immunological parameters: **total IgE, specific IgE** and **PCR** in patients surrounding Tetovo, the final results of the firs etape (May 2010) are marked in the table and graph below:

Table 1: Tabular results of the first phase in May 2010

The imunologic parameters	Total IgE klU/l		Specific IgE IU/ml		PCR mg/L	
Age group/ SEX	M	F	M	F	M	F
0 - 14	222	201	17,50	3,50	3,92	4,25
15-45	140	321	32,62	49,83	5,93	5,74
46-75	125	144	46,35	39,42	6,84	7,00
Average	162,33	222	32,15	30,91	5,56	5,66
Total average	192,16		31,35		**5,61**	

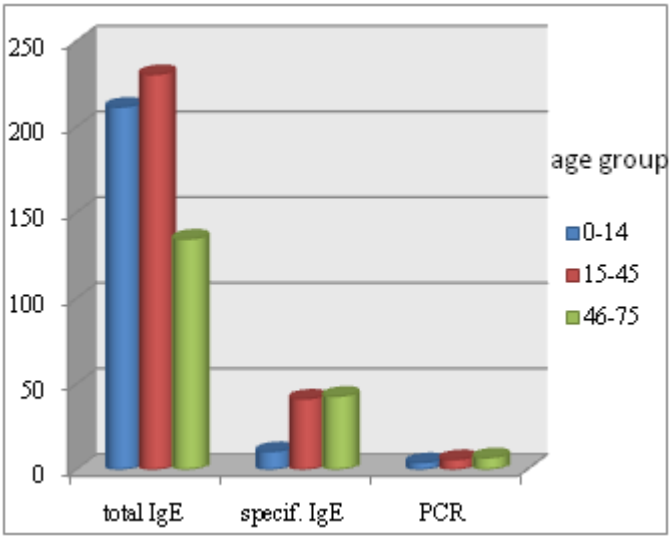
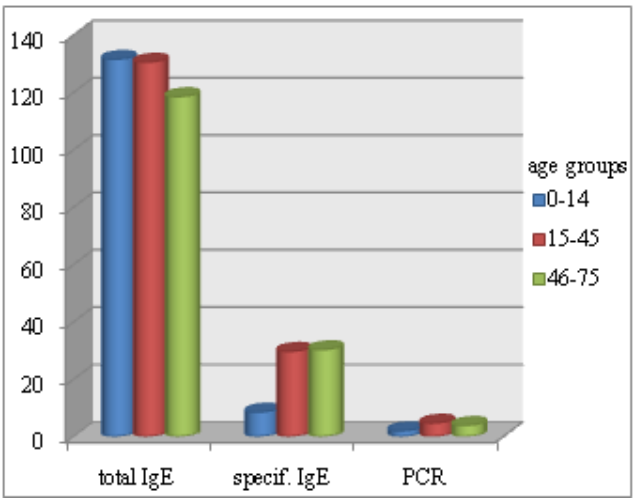


Figure 1: Graphs results of the first phase in May 2010

Table 2: Tabular results of the second phase in September-October 2010, after therapy applying

The imunologic parameters	Total IgE klU/l		Specific IgE IU/ml		PCR mg/L	
Age group/ SEX	M	F	M	F	M	F
0 – 14	120	143	10,50	6,50	1,92	2,25
15-45	140	121	29,62	29,83	3,73	5,74
46-75	125	112	29,35	31,42	4,81	3,00
Average	128,3	125,3	23,15	22,58	3,4	3,6
Total average	126,8		22,8		**3,5**	

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Graph 2: Graphs results of the second phase in September-October 2010, after therapy applying

5. Conclusions

The analyzes of immunological parameters: **total IgE, specific IgE** and **PCR** in patients surrounding Tetovo, the final results of the firs etape (May 2010), concluded that the total IgE in to 15-45 age group is higher in females with a value of 321 Klu/l. Specific IgE is higher in the age group of 46-75 years and also the highest values of 49.83 IU/ml, observed in females aged 14-45. Regarding PCR, higher values are found in the age group of 46-75 years. After applying the therapy in the period September-October 2010, the total IgE values are sitting to all age groups, except for males of 15-45 and 46-75 age group. The value of specific IgE are sitting to all age groups to both sexes, except for females in the age group of 0-14 years. In the case of PCR, after applying the therapy, resulting lower values of all age groups, except for women in the 15-45 age group, where values remain unchanged from 5.74 mg/L.

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