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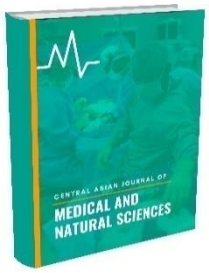

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Influence of the Premorbid Background on the Clinical and Immunological Picture of Patients at the Stage of Formation of Chronic Bronchitis

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Abstract: Based on the analysis of clinical data and the results of monitoring patients with chronic bronchitis, a concept was formulated about four main stages in the formation and development of this disease. Based on an in-depth analysis of the features of the stages of chronic bronchitis in terms of searching for real approaches to primary prevention, a large proportion of viral and associated infections was established at the stages of chronic bronchitis formation.

The data of immunological studies indicate that already in the early stages of the formation of bronchopulmonary pathology with prolonged and recurrent bronchitis, signs of suppression of humoral and cellular immunity were noted.

Key words: premorbid background, acute protracted and recurrent bronchitis, stages of chronic bronchitis formation, persistent viral infection, secondary immunodeficiency.

Relevance. Currently, it is generally recognized that four main stages can be distinguished in the evolution of CB: I - the situation of a threat, which is created by the presence of risk factors (external and internal); II - pre-illness (pre-bronchitis), when the disease manifests itself in the form of various syndromes, mainly cough and bronchospastic, with repeated (3 or more times a year) and prolonged (3 or more weeks) acute bronchitis; III - a detailed clinical picture of the disease; IV - disease with complications (progressive course with the development of respiratory failure of obstructive and emphysematous type).[9,10]**.** Exogenous and endogenous risk factors play a significant role in the occurrence and development of chronic bronchitis. Exogenous risk factors are aerogenic, i.e. volatile damaging pollutants and non-indifferent dusts. In the first place in terms of importance should be given to the inhalation of tobacco smoke, i.e. We are talking about "active" and "passive" smoking. A significant role is given to risk factors such as volatile industrial pollutants and non-indifferent dust. These are products of incomplete combustion of coal, oil, natural gas, sulfur oxides, etc., which have an irritating or directly damaging effect on the bronchial mucosa. These pathogenic factors rarely act as etiological factors, they usually reduce the tolerance of the bronchial mucosa for the pathogenic

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action of respiratory viruses and microbes, which already act as etiological factors, actually clinically manifesting a premorbid state. [1,2].

The main endogenous risk factors: belonging to the male sex; age over 40; repeated ARVI, acute respiratory infections, Mon (pneumonia), OB (acute bronchitis) protracted and more than 3 times a year; hyperreactivity of the bronchial mucosa to irritative and allergic influences; family tendency to bronchopulmonary diseases [3,4,5].

Among the etiological factors, respiratory viruses and mycoplasma infection (influenza viruses, adeno-RS-viruses, mycoplasma-pneumonia, etc.) are of decisive importance, and among bacterial agents, pneumococcus, Haemophilus influenzae and Maraxella catarrhalus are of paramount importance. [6,7,8]. At stage I, the very fact of the presence of risk factors means the existence of a "disease threat situation". Of course, for the transition to stage II, the characteristics of risk factors matter, and the more risk factors, the greater the chances of the disease moving from stage I to stage II. [10]. Thus, in the formation and development of CB, one should distinguish between risk factors (usually predisposing) and causing (etiological) factors. Of practical importance is the summation of the action of risk factors, it enhances and accelerates the pathogenic effect.

Purpose of the study: to study the proportion of prebronchitis and the influence of exogenous and endogenous risk factors on the clinical and immunological picture of the contingent at the stages of chronic bronchitis formation.

Materials and research methods. The substratum of the study was a complex of materials from patients, including brush biopsies of the nasopharyngeal mucosa (Brn), brush biopsies of the bronchial mucosa (Brbr), bronchial washings (cm) and bronchoalveolar lavage fluid (BAL).

These materials were studied in order to detect viruses and viral antigens. The main material for the detection of humoral antibodies were paired and more sera of patients; the intervals between taking sera ranged from 2 to 3 weeks. Viral AGs were detected by ELISA, as well as by immunofluorescence (MIF); Antiviral antibodies were detected using ELISA, conventional serological tests. Specific antibodies of classes M and G were detected by ELISA. Viral AGs were detected by ELISA, as well as by immunofluorescence (MIF); Antiviral antibodies were detected using ELISA, conventional serological tests. Specific antibodies of classes M and G were detected by ELISA.

Statistical analysis of the obtained data was carried out using the arithmetic mean of the studied indicator and its standard error (M + m), square deviation (sigma), confidence limits at a probability of 95; 99; 99.9% positive samples. Significance of differences was determined by Student's t-test.

Results and its discussion. 10124 persons with premorbid conditions were identified (stage II), their prevalence was 157.62 ± 15.1‰ in general. Including among men - 200.13 ± 4.1‰ and among women - 119.35 ± 12.1‰. The prevalence of the so-called prebronchitis was 182.76 ± 1.4‰ and was higher in men than in women (164.99 ± 1.8‰ and 78.55 ± 0.9‰o, respectively).

The highest prevalence of premorbid state for CB occurred at the age of 30-39 years (215±2.0‰) and somewhat less at the age of 40-49 years (182±19.0‰). In women, the highest prevalence was registered at the age of over 40 years (205.4± 1.9‰). The proportion of prebronchitis among the studied contingent ranged from 5.5 to 21.8%. According to the syndromic and nosological characteristics of premorbid conditions, the following were distinguished among them: "smoker's cough" - 42.5%; cough caused by smoking and exposure to occupational pollutants - 43.1%; prolonged course of acute bronchitis - 11.3%; chronic pathology of the nasopharynx with impaired breathing through the nose - 3.1%. In turn, 7019 of the examined people were at the stage of the "detailed clinical picture of the disease" (stage III), i.e., CNB or COPD and "obligate complications" of COPD (stage IV); while the ratio of CNB and COPD was 66.7 and 33.3%, respectively, which is

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consistent with previously published data. In Table. 1 shows data on the frequency of symptoms of CB at the stages of pathology development. A significant proportion are "cough and bronchospastic" syndromes. Table 2 presents immunological studies of the prebronchitis stage. The frequency of cough in these syndromes does not correspond to the known definition of WHO experts for CB. When considering all 4 main stages of the development of the disease, it is important to study the dynamics of the antioxidant supply of the body, which allows us to formulate specific proposals for drug prophylactic correction of free radical oxidation at the stages of CP formation and secondary immunological deficiency associated with the persistence of infection, usually viral, in the nasopharynx and upper airways. FIG. 1,2.

It is necessary to emphasize once again that the most important issue in the concentration of the staged development of CB is the delimitation of its stages, because the possibility of delaying its development and prolonging the patient's working life depends on this.

If a practically healthy person with CB risk factors, for example, has a hyperreactivity syndrome, then this indicates a transition from stage I to stage II of the disease.

Another, already purely laboratory, sign of such a transition will be, for example, the appearance of an increased number of alveolar macrophages in the cytogram of bronchial washings, etc.

At stages I and II, it is not easy to identify CB and for purely organizational reasons, because health care “works on the basis of attendance data”, i.e. the doctor waits until the patient turns to him, and the patient seeks medical help, with rare exceptions, only at stages III and IV of HB. Therefore, it is necessary to radically change the system of healthcare organization, expanding the system of active detection of the initial signs of the disease.

TABLE 1. STAGES OF DEVELOPMENT OF CHRONIC BRONCHITIS

Stages of the formation of the disease	Relative frequency (in %) in the study population
No risk factors	12,1≥ 0,5
Presence of 2-3 risk factors	64,0≥ 0,5
The situation of the threat of CB development: (heavy smoking, with ARI 3 times a year)	11,1≥ 0,5
Options for prebronchitis: Irritative bronchopathy Protracted and recurrent AB	6,9 ≥ 0,3 5,6 ≥ 0,3 1,3 ≥ 0,3
Chronic bronchitis (catarrhal, purulent, etc.)	5,9 ≥ 0,3

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FIGURE 1. TYPES OF ACTIVE VIRAL INFECTION IN PREMORBID CONDITIONS

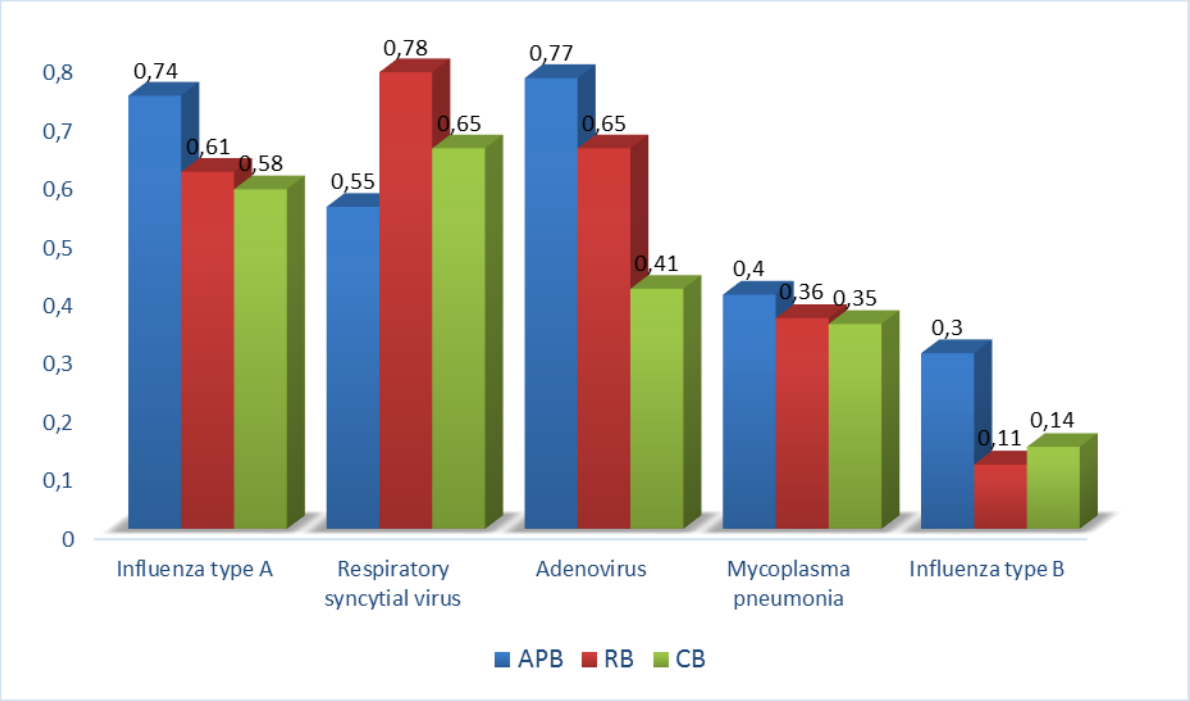

FIGURE 2. PERSISTENT AND CHRONIC VIRAL INFECTION IN PREMORBID CONDITIONS

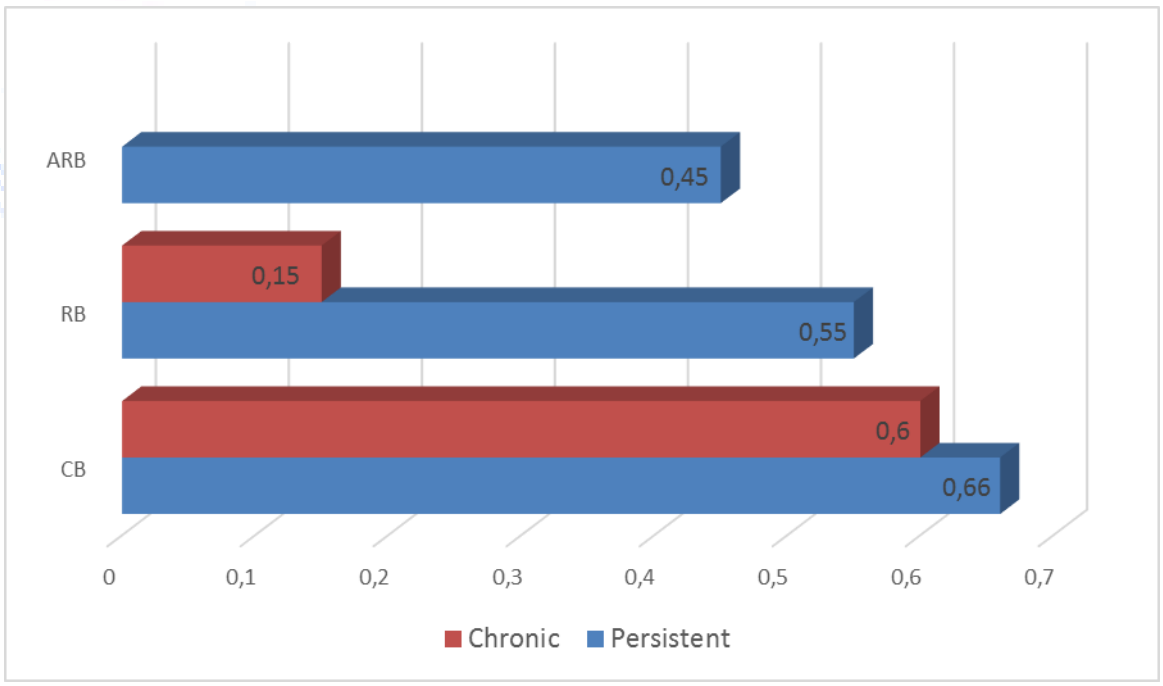

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TABLE 2. INDICATORS OF CELLULAR AND HUMORAL IMMUNE AT THE EARLY (I AND II) STAGES OF DISEASE FORMATION (M ± m);

		State of the researched		
	Indicators	**Healthy (n=30)**	**Threatened (Iэтап) (n= 89)**	**Premorbid (n=62)**
	CD3 cells/mkl	1079,04±84,2	862, 45 ±40,09***	714,71 ***
	CD3+ HLA cells/mkl	678,24±38,46	546,27 ±93,91***	367,29 ***
	CD4 cells/mkl	802,6	390,17 ±106,91***	357,83 ***
	CD8 cells/mkl	292,17	362,17 ±117,35*	186,71 ***
	Ig A g/l	2,37±0,13	1,74 ± 0,17**	2,43
	IgG, g/l	16,4±0,7	14,46 ±1,29 *	16,13 *
	IgM, g/l	1,47±0,07	2,15 ±0,26**	2,43 *
	CIC,%	87,9±4,1	142,83 ± 26,78***	158,38 ***
	Phagocyte number of neutrophils (PhNneutr., %)	71,5±2,9	61,08 ±7,14*	69,0*
	Phagocytic index of neutrophils (PhIneutr. Conv.units)	6,8±0,6	5,87 ±1,05*	6,96
	Phagocyte number of monocytes (PhN mon.%)	66,8±4,5	41,27 ±3,72**	50,44 **
	Phagocytic index of monocytes (PhI mon. Conv.units)	5,12±0,47	3,53 ± 0,57**	4,76 *
	* P<0,05 ** P<0,01 *** P<0,001	**The differences are significant compared with healthy ones.**		

Thus, based on the analysis of clinical data and the results of monitoring patients with CB, a concept was formulated about four main stages in the formation and development of this disease: I-threat situation with the presence of risk factors; II - predisease (prebronchitis); III - a detailed clinical picture of the disease; IV - disease with obligate complications of chronic obstructive bronchitis (COB) ("complicated disease"): pulmonary hypertension, cor pulmonale, obstructive pulmonary emphysema, pulmonary heart failure. Acute bronchitis (AB) with a protracted course (OBZ), which lasts more than two weeks, and recurrent bronchitis (RB) (episodes of inflammation - 3 or more times a year) involving small bronchi in the inflammatory process with symptoms of latent or clinically manifest bronchospasm, clinical and laboratory signs of a sluggish inflammatory process are one of the real ways of CB formation. As one of the variants of prebronchitis, acute bronchitis with a protracted and recurrent course requires an urgent detailed and comparative comprehensive study, because it is, apparently, a real "substrate" of primary prevention of chronic bronchitis.

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