CLINICAL IMMUNOLOGICAL CHARACTERISTICS OF NON-SPECIFIC ULCERATIVE COLITIS

[1]Dusanov A.D., [2]Mamurova N.N., [3]Ishankulova N.N.

[1]Docent of the Department of Internal Medicine № 4 with Hematology, Samarkand State Medical Institute, Uzbekistan.
[2]Assistant Lecturer, Department of Internal Medicine № 4 with hematology, Samarkand State Medical Institute, Uzbekistan.
[3]Senior Lecturer, Department of Internal Diseases 1, Samarkand State Medical Institute, Uzbekistan.
E-mail address: article_01@mail.ru

Abstract

Nonseptic ulcerative colitis (NUC) refers to the most serious and unresolved problems of gastroenterology. The disease is characterized by long-term persistent flow, a tendency to seasonal exacerbations and severe complications, a high level of disability, affects mainly young and mature working age. In recent years, an increasing importance in the pathogenesis of the NUC is attached to the immune system, which largely determines the outcome of the disease. Recently, material has been collected in the study of the pathogenesis of the NUC, which confirms the importance of changes in individual parts of the immune system: a decrease in the total number of T-lymphocytes, heterogeneity of their subpopulations, as well as violations by B-lymphocytes and natural killers. Thus, studying the peculiarities of changes in the immune system depending on the degree of severity and form of the disease, activity of the pathological process in the large intestine, development of clinical and immunological criteria of diagnostics, forecasting of the disease outcome and development of the principles of immune-corrective therapy is currently relevant.

Keywords: large intestine, ulcerative colitis, immunology, inflammation.

INTRODUCTION

There were 96 patients under observation in the gastroenterological department of CMA № 1 of Samarkand with the diagnosis of non-specific ulcerative colitis in the acute phase. The age of patients was 15-67 years, 49 of them were men and 47 women. All patients were examined according to the standards: biochemical, radiological, endoscopic (rectoromano-fibroscopy, colono-fibroscopy), immunological, bacteriological, histological studies of vital biopsy of the large intestine. The control group consisted of 25 practically healthy persons aged 17-56 years.

The main purpose develops clinical and immunological characteristics and principles of immune-corrective treatment of non-specific ulcerative colitis depending on the degree of severity and form of the disease.

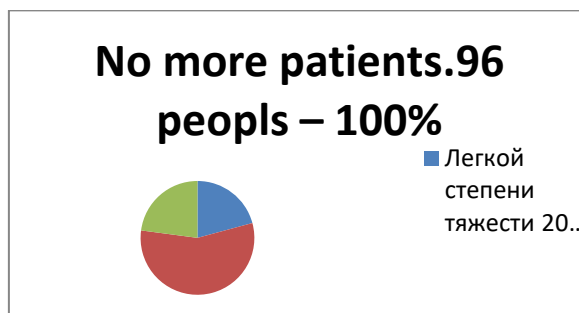The following tasks were defined in connection with the set goal:
- to reveal the peculiarities of changes in cellular and humoral immunity link in patients with mild, medium, heavy current severity and depending on the form of the disease;
- to study the state of functional activity of natural killer cells (NKC) in patients with different degrees of current severity and forms of the disease;
- to study the efficacy of NUC treatment when immune-corrective agents are included.
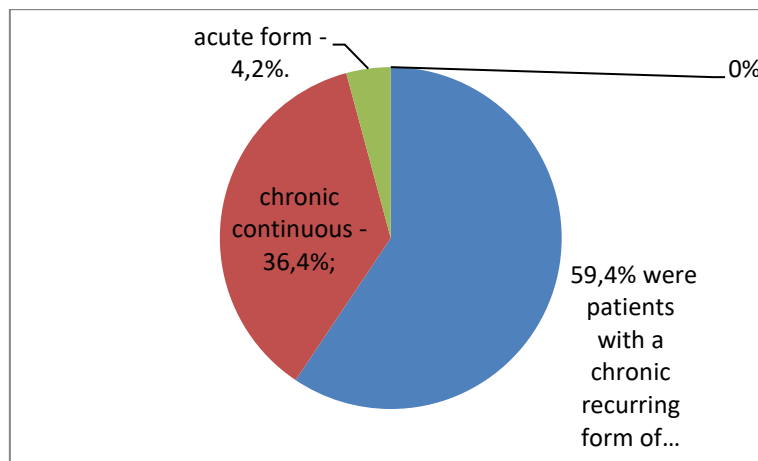
MATERIALS AND METHODS

Distribution of patients by current severity, clinical forms of the disease and localization of the process was carried out in accordance with the classification of the NUC is presented in the table 1.

Table 1. Disease course Clinical form Localization of the process total Chronic Continuous Repeating Acute Total Left Side Distal Abs. %.

The course of the disease		Clinical form			Process localization			ALL	
		Chronic Continuous	Chronic relapse	Spicy	Total	Lateral	Dystal	ABS.	%
Easy		-	20	-	-	5	15	20	20,8
Medium Heavyweight		21	33	-	8	29	17	54	56,3
Hard		14	4	4	19	3	-	22	22,9
All	ABS.	35	57	4	27	37	32		
	%	36,4	59,4	4,2	28,1	38,6	33,3	96	100

No more patients.96 peopls – 100%

■ Легкой степени тяжести 20...

In the article 59.4% were patients with chronic relapsing form of NUC, chronic continuous form - 36.4%; acute form - 4.2%.

The mild course of the disease was diagnosed only in the chronic recurrent form - in 20% of patients. Average course was in 56.3%, severe course - in 22.9%.

The immune status was assessed in accordance with accepted diagnostic standards. Absolute and relative content of T-lymphocytes, subpopulations of theophylline resistant and theophylline sensitive cells was determined. B-link condition of immune system, concentration of immunoglobulins of A, M, G classes, quantity and functional activity of NKC were also determined. The obtained data were statistically processed.

The results of the research
Clinical and immunological characteristics of patients with NUC of light degree of severity. Under our supervision were 20 NUC patients aged 17 to 65 years. Of these, 8 were men and 12 were women. Out of 20 patients 13 also had other diseases: chronic hepatitis, chronic cholecystitis, acute appendicitis. The symptoms of ulcerative colitis were revealed in these patients after thorough interview and examination. 14 patients were not bound to their disease.

Based on the history, all patients were diagnosed with chronic relapsing form of the disease. The duration of the disease is 1-14 years.
Analysis of immune status in patients of this group revealed decrease in relative number of lymphocytes - 21,8+0,88% (in healthy 25,76+1,0%), with some redistribution of their populations: decrease in relative quantity of T-lymphocytes - 54,9+2,6%; 0,76+0,06x109/l (in healthy 59,7+1,0%; 0,8+0,04x109/l) and increase in relative and absolute quantity of B-lymphocytes - 24,08+1,5%; 0,33+0,03x109/l (in healthy 20,5+1,0%; 0,26+0,02), P<0,01. Subpopulation of T-lymphocytes (TFRL and TFSL) in these patients did not change significantly. In the study of humoral immunity indicators there was statistically significant increase of IgE and IgA concentration (P<0,01), and IgM content was 2,5 times higher in comparison with the control group indicators. The functional activity of NKC showed only a decreasing tendency.

Thus, changes in the immune system in patients with mild NUC are characterized only by a decrease in T-lymphocytes, an increase in B-lymphocytes and immunoglobulins of class A and M. Changes in the above indicators can serve as diagnostic criteria for the NUC of a chronic recurrent form of mild current.

Clinical and immunological characteristics of medium severity NUC patients
Average heavy current was diagnosed in 54 NUC patients aged 15-67 years, of which 39% had a chronic continuous current. And 61% of them have a chronic recurrent form of the disease.

The study of immune system condition of patients revealed the reduction of T-lymphocytes - 48,3+1,2%; 0,72+0,06x109/l (in healthy 59,7+1,0%; 0,8+0,04x109/l) P<0,001, with proportional reduction of T-helpers - 25,6+1,3%; 0,36+0,003x109/l (healthy 37,7+1,7%; 0,5+0,04x109/l) and T-supressors - 14,4+1,31%; 0,19+0,02x109/l (healthy 19,4+1,3%; 0,25+0,02x109/l), P<0,01, unstable E-ROCs were observed. Against the background of the immunity T-system deficit, an increase in B-lymphocytes was observed (EAS-ROC - 26,3+1,2%; 2,33+0,07x109/l; healthy - 20,5+1,0%; 0,26+0,02x109/l; MROC - 13,2+0,8%; 0,20+0,04x109/l; healthy - 9,5+0,48%; 0,12+0,02x109/l). P<0,001. The analysis of humoral immunity indicators has revealed increase in serum IgA and IgM. Concentration of IgM was 2,3 times higher, than in the control group, in separate examined patients this index increased in 3-7 times. The level of IgA also tended to increase by 1.7 times.

In the group of patients with NUC of average current severity 39% of patients had a chronic continuous form of disease. In these patients we revealed the lowest indices of immunity T-cellular link with priority decrease of T-suppressors, in some patients in comparison with the control group by 4 times. Average IgA values did not differ from healthy ones.

Thus, the above mentioned shows that NUC of average severity in comparison with a mild course of the disease, on the one hand, has a more pronounced clinical picture of the disease, and on the other hand - a clear deficit of the T-system of immunity, their subpopulations, a decrease in functional activity of natural killers. The imbalance of the immune system T-system subpopulations with a decrease in T-suppressors, as well as an increase in B-lymphocytes is confirmed by an increase in IgA and IgM concentration.

Clinical and immunological characteristics of severe NUC patients

In our studies, the severe course of NUC was observed in 22 patients aged 22-51 years. In 4 of them 4 patients were found to be acute, in 14 - chronic continuous, and in 4 patients chronic relapsing forms of the disease.

Against the background of normal indices of lymphocyte number in peripheral blood a sharp decrease of T-lymphocytes was revealed: 40,5+2,29%; 0,51+0,06x109/l (in healthy - 59,7+1,0%; 0,8+0,08x109/l), P<0,001. The lowest indices (21-36%; and 0,23-0,43x109/l) were registered in 41% of patients with acute and chronic continuous forms of the disease with local and general complications, who used levomycetine, tetracycline for a long time, with delayed diagnosis verification, anemia, cachexia, hepatomegaly, myocardiodystrophy, reduction of total serum protein in the blood.

In the group of patients with severe NUC, against the background of T-lymphocyte deficiency, subpopulations of lymphocytes, like T-helpers, decreased by 29.52+2.49%; 0.37+0.052x109/l (in healthy - 37.7+1.7%; 0.5+0.04x109/l), and T-suppressors - 12.23+1.26%; 0.15+0.02x109/l (in healthy - 19.4+1.3%; 0.25+0.02x109/l), P<0.001. However, the degree of decline was different, mainly due to T-suspressors (TSSPL). The coefficient reflecting the balance of immunoregulatory cells increased to 2.4+0.2 (in control 1.94+0.09). Minimal indexes of T-suppressors were observed in 68,2% of patients with the limits of 0,04-0,19x109/l (both acute and chronic continuous forms of the disease). Simultaneously with the reduction of T-suppressors the number of T-helpers decreased. At severe course of the disease reliable (P<0,001) decrease of E-ROC was noted.

We evaluated clinical and immunological characteristics of each group of patients - light, medium and severe degree of severity. In spite of high concentrations of ERC precursors, their functional activity was the lowest among all NUC patients examined by us.

Thus, in our studies it is shown that in NUC the change of cellular and humoral immunity, NKC functional activity is associated with the activity of pathological process in the large intestine, the severity of the condition and the form of disease. Even with the mildest degree of severity of the chronic recurrent form, small changes in the T- and B system of immunity have been detected. As the activity of the disease increases, the prevalence of pathological process in the large intestine, and the severity of clinical and endoscopic manifestations, the deficit of the T-system of the immunity deepens with a pronounced imbalance of subpopulation of both T-helpers and T-suppressors, and the suppression of the functional activity of NKC. The expressed imbalance of T-system of immunity leads to the development of autoimmune reactions, systemic lesions of all parts of the gastrointestinal tract, liver, heart and blood. These manifestations are most pronounced in chronic continuous and acute forms of non-specific ulcerative colitis, medium and severe current. We noted that probably irrational, unsystematic use of antibiotics deepens the immune system deficit, contributes to the prevalence of the process, an unfavorable outcome of the disease.

CONCLUSIONS
In NUC patients immune system disorders (cellular and humoral immunity link) are directly dependent on the disease form, severity of the current and activity of the pathological process. Low indices of NKC functional activity testify to a severe current and unfavorable prognosis of the disease and are the criterion of the disease severity diagnostics.

Thus, determination of the state of the immune system (cellular and humoral immunity link) in case of NUC can serve as a criterion for determining the form and severity of NUC. As additional immunological criteria for diagnostics of non-specific ulcerative colitis it is recommended to determine the functional activity of natural killer cells. Decrease in the functional activity of NKC reflects the degree of severity of the pathological process and the form of the disease. The lowest indicators are observed in case of severe severity of acute form. When selecting immunomodulatory drugs, it is recommended to determine the individual sensitivity of peripheral blood T-lymphocytes of patients to immunomodulatory drugs for differentiated therapy.

REFERENCES
1. Parfenov A.I. Antibiotic-saturated intestinal dysbiosis. Pharmatheque. 2013; 6: 87-9
2. Poluektova E.A., Kuchumova S.Yu., Ivashkin V.T. Application of the combined preparation of alverin citrate and semiticon in treatment of patients with irritable bowel syndrome. Russian Journal of Gastroenterology, Hepatology, Coloproctology. 2012; 4: 38-46.
3. Rapoport S.I., Kolesnikov D.B., Voznesenkaya L.A. "Functional diseases from the position of V.H. Vasilenko". Clinical medicine. 2012; 9: 35-7.
4. Zimmerman Ya.S. Reflections on public health, medicine and healing (untimely thoughts of an old doctor). Clinical Medicine. 2011; 3: 4-9.
5. Frolkis A.V. Intestinal diseases. St. Petersburg; 2003.
6. Dusanov A.D. Clinical and immunological characteristics of nonspecific ulcerative colitis. Author's abstract. Samarkand 1993.
7. Obraztsov V.P. To the general symptomatology of enteritis and colitis. Russkiy arkhiv patologii, klinicheskoy meditsiny I bakteriologii. 1896; 1:285-93. (in Rusian)
8. Parfenov A.I. Diagnosis and treatment of enteropathy. Russkiy meditsinskiy zhurnal. 2013; 13; 731-6. (in Rusian).
9. Parfenov A.I. Enterology. Moscow; 2002. (in Rusian).
10. Tsimmerman Ya. S. Celiacia and hypolactasia in adults: etiology, pathogenesis, diagnostics and treatment. Klinicheskaya meditsina. 2011; 2: 14-20. (in Rusian)
11. Rapoport S.I. Functional diseases from the V.H. Vasilenko. Klinicheskaya meditsina. 2012; 9: 35-7. (in Rusian)
12. Eric Wei Chiang Chan, Siu Kuin Wong, Joseph Tangah, Hung Tuck Chan. "Chemistry and Pharmacology of Artocarpin: An Isoprenyl Flavone from Artocarpus Species." Systematic Reviews in Pharmacy 9.1 (2018), 58-63. Print. doi:10.5530/srp.2018.1.12
13. Jones, D., Min, W.An overview of lymphatic vessels and their emerging role in cardiovascular disease (2011) Journal of Cardiovascular Disease Research, 2 (3), pp. 141-152. DOI: 10.4103/0975-3583.85260