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DISORDERS OF IMMUNE REACTIONS AND THEIR IMMUNOREHABILITATION IN PATIENTS WITH DUODENAL ULCER

Abstract. The immunoreactivity was analyzed in 52 patients with duodenal ulcer (DU) and 36 healthy persons. The suppression of T-system and its subsets, a tension of humoral link of immunity was observed in patient.

The use traditional method of treatmend was not made a result to disorder of second immunodificiens in patients with DU.

The usage of Thymoptinum, the dose of which was 1.0 mg – 1.2 mg (in one course) at second group patients (n = 24) with DU cured immune disorder, increased cell immunity, and had immunocorrection and eradication features.

Keywords: the immune system, T- and B-link immunity, cellular immunity, humoral immunity, link, thymoptinum immunotherapy, duodenal ulcer, Helicobacter pylori.

Duodenal ulcer (DU) occupies an important place in the structure of diseases of the digestive system. According to world statistics its prevalence among the adult population of all countries reaches from 7 to 10%. The etiology of DU associated with Helicobacter pylori (HP infection) is associated with contamination of the mucous membrane (MM) of the gastroduodenal zone – GDZ (gastric MM – GMM and DMM) with these cytotoxic strains of these bacteria [1–4].

The development of various forms of gastroduodenal pathology depends on the resistance of the microorganism, and HP pathogenic strains can show their cytotoxic effect only when the immunobiological properties of the human body are reduced against the background of the developed immunodeficiency status [5–8].

The purpose of this study was to study the parameters of immunity in patients with DU and conduct antihelicobacter and immunocorrecting therapy in them.

Materials and methods. 52 patients with DU were examined, of whom 37 (71.2%) were men and 15 (28.8%) women aged from 23 to 54 years. The duration of ulcerative history was on average 6.2 ± ± 2.4 years. The diagnosis of exacerbation of DU was confirmed endoscopically. The average size (diameter) of the ulcers was 0.9 cm. Contamination of the GMM was determined by urease test. All patients showed a high degree of HP–infection. Depending on the treatment, the patients were divided into 2 groups: the 1st group (n = 28) received an eradication regimen consisting of Omeprazole (40 mg/day), De-nol (480 mg / day), Tinidazole (1000 mg/day) for 2 weeks; in the 2nd group (n = 24), the same treatment regimen with the 1st group was used, supplemented with Thymoptinum (Uzbekistan) (1 ml of 0.01%) solution subcutaneously every other day; for a course of 10–12 injections).

Cellular immunity was studied using monoclonal antibodies to CD receptors ("Sorbent Ltd", Russia)

of the Institute of Immunology of the Ministry of Health and Social Development of the Russian Federation. T-lymphocytes were determined (total population – CD3); T-helpers (subpopulation Th – CD4); T-suppressors (Ts subpopulation – CD8); B lymphocytes (subpopulation of CD19) and immunoregulatory index (IRI) – CD4 / CD8. The level of serum immunoglobulins of classes A, M and G was determined according to Mancini (1968). Circulating immune complexes (CIC) were detected by Hascova. Immunological examination was carried out for 2–5 days after the patient was hospitalized, and also 1 month after the treatment. The control group for comparison of immunological parameters was 36 practically healthy individuals (25–55 years).

The results of research and their discussion. In a retrospective analysis of the results of immunological examination presented in the tables 1, 2 it was found that the acute phase of DU was accompanied by a decrease in the level of the general population of T-lymphocytes (CD3). Differences were found in groups with different outcomes of eradication therapy: patients with the 1st group had a lower T-cell content in the blood than patients with the 2nd group. Also in both groups there was an imbalance of T-cell subpopulations with a decrease in their helper share (CD4) and an increase in the number of suppressors (CD8); a significant decrease in IRI and B-lymphocytes (CD19) was registered, which indicates profound changes in reactivity in patients with DU.

With exacerbation of DU in both groups, a significant decrease in IgA and IgM levels was observed with a simultaneous increase in IgG indices ($p < 0.01$ in the 1st; $p < 0.001$ in the 2nd group), which indicates violations in the humoral component of the immune system. Changes in immune homeostasis are also accompanied by a significant, 3-fold increase in the level of the CIC ($p < 0.001$).

Table 1. – Dynamics of changes in cellular immunity in patients with DU in the process of immunomodulatory therapy (M ± m).

Indicators		Patients of the 1st group	Patients of the 2nd group	Control group
CD3(%)	A	39 ± 1.2***	43 ± 2.3**	51 ± 2
	B	42 ± 1.4***	64 ± 2.6***	
CD4(%)	A	25 ± 0.9***	23 ± 1.1***	36 ± 0.7
	B	28 ± 1.4***	44 ± 1.6***	
CD8 (%)	A	15.1 ± 1.4	16.5 ± 1.3	17 ± 1.2
	B	16.2 ± 1.6	19.1 ± 1.0	
ICI	A	1.6 ± 0.2**	1.5 ± 0.2*	2.1 ± 0.1
	B	1.7 ± 0.1*	2.3 ± 0.2	
CD19(%)	A	11 ± 1.2**	11.7 ± 1.5	15 ± 1
	B	19.6 ± 0.7***	18.7 ± 0.5**	

*Note: A – indicators before treatment, B – indicators after treatment; *– $p < 0.05$; **– $p < 0.01$; ***– $p < 0.001$ compared to control*

The formation of a peptic defect is not only the result of local damage to the DMM against an imbalance of aggression and the protection of HP microbial contamination, but also a consequence of a breakdown in adaptation, an imbalance in the immune system. DU in most patients is associated with intestinal dysbiosis, microbial antigens of which can cause sensitization and exacerbate the immune deficiency in DUD patients [1, 2]. Healing of the peptic defect was achieved in a shorter time with successful eradication of HP (in the 1st group – for 24.8 ± ± 1.2 days with an eradication efficiency of 59%; in the 2nd group – for 17.3 ± 0.46 days with an effectiveness eradication 86%). After treatment, patients

with the 1st group had lymphopenia; the level of the total population of T-lymphocytes CD3 (Table) was reduced, as was its helper CD4 fraction ($p < 0.01$) with a high level of CD8 suppressors, which was significantly different from the corresponding parameters of the 2nd group. A reduction in the IRI to 1.5 at a rate of 2.1 confirms the imbalance in the CD4 / CD8 system in patients with ineffective eradication.

Table 2. – Dynamics of changes in humoral immunity in patients with DU in the process of immunomodulatory therapy (M ± m)

Indicators		Patients of the 1st group	Patients of the 2nd group	Control group
	B	13 ± 1.6	17.2 ± 2.1	
IgA. g/l	A	2.2 ± 0.3	2.3 ± 0.4	2.8 ± 0.3
	B	2.5 ± 0.5	2.9 ± 0.2	
IgM. g/l	A	1.3 ± 0.1*	1.2 ± 0.2*	1.6 ± 0.11
	B	1.02 ± 0.2***	1.5 ± 0.2	
IgG. g/l	A	20.4 ± 0.6***	19.4 ± 0.8**	15.9 ± 0.9
	B	19.6 ± 0.7***	18.7 ± 0.5**	

*Note: A – indicators before treatment, B – indicators after treatment; * – $p < 0.05$; ** – $p < 0.01$; *** – $p < 0.001$ compared to control*

Patients of the 2nd group, after immunocorrective therapy, showed an effective increase in the number of T CD3, B cells (CD19) (Table), with a simultaneous increase in the proportion of Th (CD4) and IRI to 2.3 (normal 2.1), which was much higher than similar values from the 1st group ($p < 0.001$). Apparently, a positive shift in the functioning of the T-cell (an increase in CD3, CD4 and a decrease in CD8) component of the immune system contributes to the eradication of HP. In addition, an increase in B-lymphocytes (CD19) and IgA levels was observed in this group compared to the data before treatment ($p < 0.001$) (Tables 1, 2).

Thus, DU in the recurrence stage is characterized by a deep deficit of most of the parameters of the body's immune system with a high HP infection of GMM and DMM. Predictors of ineffective eradication are a significant decrease in the number of CD3, CD4 and IRI, as well as a decrease in the concentration of Ig A. On the contrary, clinical and endoscopic remission of patients of the 2nd group (immunomodulating therapy) was accompanied by a significant increase in the parameters of cellular-humoral immunity, which positively affected the results of eradication and immunocorrective therapy.

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