KAPITEL 3 / *CHAPTER 3* [3]
EVALUATION OF THE EFFECTIVENESS OF CONSERVATIVE TREATMENT OF INTESTINAL POLYPS IN COMPLEX WITH SURGICAL

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Introduction.

Today, endoscopic polypectomy is the main method of treatment for patients with gastric or intestinal polyps [2]. Polypectomy is highly effective and safe. In the case of numerous polyps with dysplasia of grades II–III, endoscopic removal of polyps causes the possibility of their recurrence and increases the risk of bleeding.

Much attention is paid to polyps that grow in the early stages after polypectomy at the site of their initial localization. Repeated electroexcision in most such cases does not give positive results - persistent multiple occurrence of the polyp in the area of its removal is noted.

Polyps can be malignant. Polyps less than 1 cm in diameter are malignant very rarely (1.1%), with sizes of 1-2 cm - in 7.7%, more than 2 cm - in 42% [2].

Lipid peroxidation (LPO) processes that occur in cytoplasmic membranes are involved in physiological and pathological processes. Disruption of the structure of cytoplasmic membranes when changing the processes of lipid peroxidation is the cause of the development of a pathological process (including inflammation) [1, 3]. The composition of phospholipids of biological membranes includes fatty acids (FA).

In the lumen of the colon, during bacterial fermentation of undigested food and endogenous proteins (mucus and exfoliated epithelial cells), acetic and propionic acids are formed, as well as butyric fatty acid (short-chain) [8]. An important one is butyric acid (a source of energy for epithelial cells of the colon), which affects a wide range of cellular functions and supports intestinal homeostasis. Butyric acid has a beneficial effect on the intestinal wall (in particular, the colon) and enhances its barrier function to antigens. One of the important components of this barrier is the mucus layer that covers the epithelium. Butyric acid enhances mucus production and restores the level of antimicrobial proteins [11]. Butyric acid has anti-inflammatory and anticarcinogenic

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effects; its deficiency contributes to the development of inflammatory processes, ulcerative colitis and colon cancer [5]. During exacerbation of ulcerative colitis, the concentration of butyric acid in the intestine changes, its concentration in feces decreases and the ability of the colonic mucosa to oxidize butyric acid deteriorates, while during remission, the ability to oxidize it remains normal [10].

The amount of short-chain fatty acids in the cecum and feces correlates with the thickness of the mucus layer. Short-chain fatty acids affect the motility of the upper gastrointestinal tract and appetite [12, 13]. The level of butyric acid is related to the amount of long-chain fatty acids - in the human body, one fatty acid is converted into another by the addition or elimination of a carbon.

Fatty acids are structural elements of biomembranes and participate in lipid peroxidation reactions, therefore their qualitative and quantitative changes may indicate the presence of a pathological process in the human body.

The aim of our research was to assess the effectiveness of using Zafacol (based on the composition of fatty acids in the blood serum) in combination with surgical treatment in patients with intestinal polyps.

Materials and methods. We examined 35 (35.9 % of 98) healthy individuals and 63 (64.1 % of 98) patients with intestinal polyps, in whom more than 2 polyps were detected. The first group (I, comparison) in the amount of 35 people consisted of healthy individuals. The second (II) and third (III) groups consisted of patients with colon polyps. Group II included 33 (33.6 % of 98) people who were prescribed only traditional surgical treatment (polypectomy). Group III included 30 (30.5 % of 98) people who were prescribed surgical treatment in combination with a medication (Zafacol). The age of the examined subjects was 30-75 years.

In the selected subgroups, the patients did not differ significantly in age, gender, size and degree of polyp expression. Thus, the subgroups of the examined individuals were homogeneous in most of the signs of their clinical characteristics. This made it possible to compare the digital indicators of different groups.

The studies were conducted on the basis of the clinic of the State Institution "Shalimov`s National Institute of Surgery and Transplantation" to National Academy

of Medical Sciences of Ukraine (now the State Institution "National Scientific Center of Surgery and Transplantation named after O.O. Shalimov to National Academy of Medical Sciences of Ukraine"), where the patients were on outpatient or inpatient treatment.

We studied clinical, anamnestic and laboratory data. We took into account the patients' complaints, history of the disease and life. Special examination methods were used (proctological examination of the patient, fibrocolonoscopy).

Intestinal polyps were detected during endoscopic examination. The intestinal mucosa was studied and polyp material was taken with a probe (to exclude or confirm malignancy) during endoscopy or polypectomy. Morphological examination of the removed intestinal polyp was performed.

To conduct diagnostic endoscopic examinations and polypectomy in the examined individuals, various endoscopic devices with an endovideo system (mainly manufactured by the company "Olympus" (Japan)) and a set of standard instruments (oval loops, ball electrodes) were used.

The composition of fatty acids of phospholipids in blood serum was studied by a biochemical method on a gas-liquid chromatograph of the "Cvet-500" series with a plasma ionization detector in isothermal mode [4], which is based on the extraction of lipids from serum, the isolation of phospholipids, methylation and gas chromatographic analysis of fatty acids. To determine the composition of lipid fatty acids, a glass column (size 3 m x 0.3 cm) filled with a 5% PEGS phase was used on a N-A/H-HMFS chromotron (grain size 0.125-0.160 mm), evaporator temperature – 250°C, nitrogen and hydrogen flow rates – 35 ml/min, scale sensitivity – 10-a, input sample volume – 5 ml, analysis duration – 20 min.

In patients with intestinal polyps, fasting blood was taken from a vein in an amount of 3-5 ml with a disposable syringe into a 10.0 ml centrifuge tube and centrifuged for 15 min. at a speed of 1500 rpm, then the upper layer (serum) was collected with a Pasteur pipette into a centrifuge tube for lipid extraction. Sample preparation and gas chromatographic analysis were performed according to the method of Sazonenko L.V. and Bryuzhgina T.S. (2003) [3, 9].

Quantitative assessment of the composition of fatty acids in serum lipids was performed using the area normalization method by determining the peaks of fatty acid methyl esters. The proportion of fatty acids was determined in percent (%) [8, 9]. The error in determining the indicators was □10%.

As a result of our previous studies, a change in the composition of fatty acids in serum lipids was established in patients with intestinal polyps (compared to healthy individuals) [1]. This necessitates their correction. As a medication in the complex treatment of intestinal polyps, we took zafakol (contains calcium butyrate and bifidobacteria (bifidum, lactis)). Zafacol promotes normal functioning of intestinal mucosa cells, reduces inflammation, normalizes peristalsis, and restores microbiocenosis.

Zafacol (Italy) was prescribed 1 tablet 2 times a day after meals (without chewing); the course of treatment was 30 days.

Before treatment and after the end of the course of taking Zafacol, changes in the composition of fatty acids in the blood serum were studied in patients of both groups (II and III).

Results of the study. Before treatment, the indicators of fatty acids in the blood serum of patients with intestinal polyps of group II did not significantly differ from such indicators of fatty acids in patients of group III. This made it possible to compare these groups with each other during the treatment process.

The most sensitive to the processes of lipid peroxidation are linoleic ($C_{18:2}$) and arachidonic ($C_{20:4}$) fatty acids. Analysis of our studies showed that in patients with intestinal polyps (Groups II and III) before treatment, the total content of unsaturated fatty acids (including polyunsaturated) increased and the total content of saturated fatty acids decreased. In patients in Groups II and III, the content of unsaturated fatty acids increased to (64.9 ± 1.6) % compared to (43.0 ± 2.0) % in healthy individuals (Group I), $p < 0.001$. The amount of saturated fatty acids significantly decreased in patients in Groups II and III - to (35.1 ± 1.6) % compared to (57.0 ± 2.0) % in the comparison group, $p < 0.001$.

The increase in the content of polyunsaturated fatty acids (PUFA) before

treatment in individuals of group II (up to (50.3 ± 1.3) % compared to (18.8 ± 1.8) % in healthy individuals, $p < 0.001$) occurred as a result of an increase in the level of linoleic ($C_{18:2}$) and arachidonic ($C_{20:4}$) FA. The level of linoleic FA ($C_{18:2}$) increased to (24.1 ± 1.5) % in patients of groups II and III compared to (16.0 ± 1.4) % in the comparison group (group I), $p < 0.001$. The level of arachidonic FA ($C_{20:4}$) increased to (23.4 ± 1.5) % in patients of groups II and III compared to (2.8 ± 0.3) % in healthy individuals, $p < 0.001$.

Before treatment, myristic ($C_{14:0}$) and margarine ($C_{17:0}$) FA appeared in the blood serum of patients with intestinal polyps, which were absent in the comparison group (I), $p < 0.001$. In patients of groups II and III, the amount of myristic ($C_{14:0}$) FA was (20.2 ± 1.0) %, and margarine ($C_{17:0}$) FA was (2.8 ± 0.4) %. The presence of myristic FA in the blood serum indicates endocrine changes in the body of patients with intestinal polyps, and the appearance of margarine FA may be due to the presence of bacterial infection.

The amount of palmitic ($C_{16:0}$) and stearic ($C_{18:0}$) fatty acids before treatment significantly decreased: - respectively (7.3 ± 0.7) % and (1.5 ± 0.3) % - in patients of groups II and III compared with healthy individuals ($p < 0.001$), where the amount of palmitic FA was (41.9 ± 0.9) %, stearic - (15.1 ± 1.3) %.

The bulk of lipids after absorption in the body enters the bloodstream, bypassing the liver. But the liver plays an important role in lipid metabolism and the formation of some fatty acids (in particular, palmitic and stearic). Therefore, a decrease in the amount of these acids in patients with intestinal polyps gives grounds to argue about impaired liver function in them and requires correction of its functional state.

After treatment, patients with intestinal polyps in group III improved serum fatty acid levels faster than patients in group II.

In patients in group III, during treatment, the level of palmitic ($C_{16:0}$) and stearic ($C_{18:0}$) FA significantly increased to (40.4 ± 1.1) % and (14.2 ± 1.0) %, respectively (at (7.3 ± 0.7) % and (1.5 ± 0.3) %, respectively, according to treatment, $p < 0.001$). In healthy individuals, the level of palmitic FA was (41.9 ± 0.9) %, stearic – (15.1 ± 1.3) %.

In patients of group II, the level of palmitic and stearic FA increased during treatment (but did not normalize) and amounted to (15.1 ± 0.8) % and (5.0 ± 0.4) %, respectively, which significantly differed from such indicators in healthy individuals ($p < 0.05$) and fatty acid indicators before treatment ($p < 0.05$).

In patients of group II after treatment, the level of pentodecanoic FA ($C_{15:0}$) did not significantly differ ($p > 0.05$) from such indicator before treatment, in patients of group III during treatment, pentodecanoic FA was absent ($p < 0.05$).

The level of margarine FA ($C_{17:0}$) in patients of group II after treatment was (2.4 ± 0.3) % (before treatment – (2.8 ± 0.4) %), which did not significantly differ ($p > 0.05$). In patients of group III after treatment, the level of margarine FA was (0.5 ± 0.1) %).

The level of myristic FA ($C_{14:0}$) in patients of group III during treatment significantly decreased (to (2.0 ± 0.3) % compared to (20.2 ± 1.0) % before treatment, $p < 0.001$). In patients of group II, its level did not decrease significantly (to (17.1 ± 1.1) %, $p > 0.05$) compared to this indicator before treatment.

In patients of group III, the total content of saturated and unsaturated fatty acids (including polyunsaturated FA) normalized during treatment, in patients of group II - normalization of these indicators did not occur.

Conclusions.

1. In patients with intestinal polyps, the composition of lipid fatty acids changes (the total content of unsaturated (including polyunsaturated) increases and the total content of saturated fatty acids decreases) compared to healthy individuals, which indicates a violation of lipid metabolism and the need for their correction.

2. The use of Zafacol in combination with surgical treatment in patients with multiple intestinal polyps is aimed at rapid correction of changes in the composition of lipid fatty acids in blood serum, which will contribute to increasing the effectiveness of treatment in these patients.