Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 4, 2021, Pages. 1922 - 1926
Received 05 March 2021; Accepted 01 April 2021.

Influence of Changes in the Intestinal Microflora after Gastrectomy and Correction Methods

UmidSunnatovichMAMEDOV,JamshidRahmatovichNUROV,FeruzaSharofovna KHALIKOVA
Department of Oncology and Medical Radiology
Bukhara State Medical Institute named after Abu Ali ibn Sino, Bukhara, Uzbekistan.

ABSTRACT

Changes in the intestinal microflora after gastrectomy, its effect on the body and methods of correction were analyzed in 20 patients who underwent surgery for stomach cancer. The study of the microflora of the colon revealed a decrease in the number of bifidobacteria and lactobacilli, an increase in the number of pathogenic and opportunistic bacteria. Changes in the microflora were manifested by such clinical signs as general weakness, bad breath, mild pain and nausea in the epigastric region after eating, flatulence. When patients underwent 1 course of bifidobacterinoma of lactic acid in the postoperative period, clinical symptoms significantly decreased, and the quality of life of patients improved.

KEY WORDS:stomach cancer, gastrectomy, microflora.

INTRODUCTION

Although gastrectomy is a very common surgical intervention, however, its immediate results cannot always be considered satisfactory. This is primarily due to the high incidence of postgastrectomy disorders [4]. Often, these complications lead to persistent and severe disorders, leveling the results of the operation and significantly reducing the quality of life [2]. A large number of works have been devoted to the prevention and treatment of postgastrectomy disorders, but the search for an optimal method continues to date [5]. In recent years, the attention of researchers and clinicians to the study of the etiopathogenetic role of host microorganisms in the development of many diseases has noticeably increased, however, these aspects in cancer patients have been little studied [1,7-10].

The aim of this work was to study the state of the intestinal microflora in patients with gastric cancer after gastrectomy and the effect of its correction on the course of postgastrectomy disorders.

MATERIAL AND METHODS

We observed 20 patients who underwent gastrectomy. Of these, 8 were diagnosed with stage II cancer and 12 with stage III of the disease. Radical operations were performed on all of them. Of these, there were only males aged 50 to 66 years. The terms of treatment of patients after surgery ranged from 3 months to 1 year. All patients underwent X-ray examination with barium suspension and EGDS.

The reason for the appeal was severe functional disorders that arose after gastrectomy and associated with impaired digestion. In this regard, studies were carried out in these patients of the initial state of the intestinal microflora and 7 days after its correction. The studies were carried out using the classical bacteriological method in accordance with the methodological recommendations [6]. The number of isolated microorganisms was determined using the Cavalli-Sfoza formula and expressed in decimal logarithms per gram of the test material (CFU / g). The

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 4, 2021, Pages. 1922 - 1926
Received 05 March 2021; Accepted 01 April 2021.

identified microorganisms were identified using API-20 test systems. Microflora correction was performed with lactic acid bifidumbacterin. The course of treatment was 30 days. Bacteriological studies were carried out at the Department of Microbiology, Bukhara State Medical Institute.

RESULTS

The clinical manifestations that served as the reason for the treatment were: the presence of general weakness, bad breath, a feeling of heaviness in the epigastrium and nausea after eating, meteorism and unstable loose stools. In addition, asthenia was observed in all patients.

X-ray examination of the function of the esophageal-intestinal anastomosis with barium suspension in all patients showed no gross dysfunctions of its function. X-ray signs of esophagitis were absent. Endoscopic control showed that the esophageal mucosa was not changed in 8 patients, and 12 had signs of catarrhal esophagitis. When examining the anastomosis zone, all patients showed moderate hyperemia, swelling along its line, passing to the discharge loop.

In laboratory tests, hypoproteinemia attracted attention - the average level of plasma protein was 57.8 ± 0.3 g / l.

A bacteriological study of the colon microflora in 16/20 patients who underwent gastrectomy showed a sharp decrease in the quantitative content of bifidobacteria, amounting to <6.0. The average level of lactobacilli in the general intestinal microbiocenosis did not exceed 4.0 ± 0.1. Sulfate-reducing clostridia were isolated in 12/20 subjects in the amount of 5.4 ± 0.1. The frequency of occurrence of bacteroids and other non-spore-forming anaerobes was 100%, and their quantitative level did not exceed the permissible values of the norm.

Dynamics of changes in the quantitative and qualitative composition of the microflora of the large intestine in patients with stomach cancer.

The main representatives of microflora in CFU / g	Limits of the norm in lg	Before treatment (n = 5)		After treatment (n=5)	
		Abc**	M±mlg	Abc	M±mlg
Bifidobacteria	9,0-10,0	16/20	<6,0	20/20	9,6±0,3
Lactobacillus	7.0-8.0	20/20	4,0±0,1	20/20	6,1±0,2
Bacteroids	9,0-10,0	20/20	9,1 ±0,3	20/20	9,4±0,1
Clostridia	<5,0	12/20	5,4±0,1	4/20	2,7±0,1
Peptostreptococci	10,0-11,0	20/20	9,2±0,1	20/20	9,6±0,3
Other NAB *	9,0-10,0	20/20	8,5 + 0,2	20/20	8,3±0,3
E.coli (1ac +)	7,0-8,0	16/20	9,6 ±0,1	20/20	8,4±0,1
E.coli (1ac-)	<4,0	12/20	7,6±0,3	20/20	<4,0
Klebsiella	<4,0	20/20	8,5 ±0,3	16/20	<4,0
S. aureus	<2,0	16/20	2,8 ±0,1	16/20	<2,0
S.epidermidis	<5,0	4/20	4,8±0,1	20/20	<4,0
Enterococci	7,0-8,0	8/20	8,1 ±0,2	20/20	6,6±0,3
Mushrooms of the genus Candida	<5,0	16/20	5,6±0,3	12/20	2,3±0,1
Mold fungi	<2,0	8/20	4,0 ±0,3	20/20	<2,0

*Note: * - non-spore-forming anaerobic bacteria.** - absolute value.*

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 4, 2021, Pages. 1922 - 1926
Received 05 March 2021; Accepted 01 April 2021.

On the part of the aerobic flora, in the general microbiocenosis of all patients, there was a clear increase in the frequency of colonization of the colon mucosa by opportunistic microorganisms of the Enterobacteriaceae family. In 100% of cases, the quantitative content of typical Escherichia coli exceeded the permissible values of the norm, averaging 9.6 ± 0.1. In 12/20 examined, Escherichia with weakened enzymatic activity (lac-) was isolated from the contents of the large intestine, the quantitative level of which was 7.6 ± 0.3. In addition, microorganisms of the genus Klebsiella with an average geometric concentration of 8.5 ± 0.3 were found in the microflora of all patients. Coccal flora in 16/20 patients was represented only by Staphylococcus aureus with a quantitative level of 2.8 ± 0.1. The number of enterococci was slightly increased in 8/20 patients (up to 8.1 ± 0.2). Practically in all examined (16/20) fungi of the genus Candida were isolated, and their quantitative level slightly exceeded the permissible values of the norm, amounting to 5.6 ± 0.3. In addition, in 8 patients, mold-like fungi were found in the general intestinal microbiocenosis, which are not representatives of normal microflora. Moreover, their quantitative level reached 4.0 ± 0.3. The appearance of these microorganisms was, most likely, a consequence of long-term functional disorders of digestion.

Thus, in the microbiocenosis of patients who underwent gastrectomy, gross dysbiotic disorders of its composition were noted.

After the course of treatment with fermented milk bifidobacterin, a complete restoration of the quantitative content of bifidobacteria and lactobacilli to normal was observed in almost all patients (9., 6 ± 0.2 and 6.1 ± 0.3). The quantitative level of other non-spore-forming anaerobes remained unchanged ($p > 0.05$). Due to this, the specific gravity of anaerobic microorganisms in the intestinal microbiocenosis significantly increased.

The frequency of colonization of the mucous membrane of the large intestine with sulphate-reducing clostridia, which were found only in 4 subjects in an amount not exceeding lg 2.0, sharply decreased.

Against this background, in all patients there was a decrease in the general intestinal microbiocenosis of the quantitative level of a typical E. coli to the normal range. Moreover, in 100% of cases, there was a complete elimination of opportunistic enterobacteria and lactose-negative Escherichia. At the same time, the recovery to the norm of enterococci in the intestinal microflora was noted in all patients. After the correction, the content of staphylococci corresponded to the permissible values of the norm. At the same time, the frequency of occurrence (12/20) and the quantitative level of fungi of the genus Candida decreased to 2.3 ± 0.1.

The restoration of normal microflora contributed to the elimination of mold fungi from the intestinal microflora in patients who underwent gastrectomy.

Thus, the use of fermented milk bifidumbacterin had a corrective effect on the intestinal microflora.

Objective clinical data also correlated with the results of microbiological studies. All patients noted a significant improvement in their general condition. Against the background of a normal lifestyle, the odor from the mouth disappeared, weakness, nausea, flatulence disappeared, and the stool returned to normal. All patients noted an increase in body weight.

In laboratory tests, the level of total plasma protein increased statistically significantly, mainly due to albumin (61,4%).

Although EGDS was performed only in 13 out of 20 patients, all examined patients had no signs of inflammation in the area of the esophageal-intestinal anastomosis.

Annals of R.S.C.B., ISSN:1583-6258, Vol. 25, Issue 4, 2021, Pages. 1922 - 1926
Received 05 March 2021; Accepted 01 April 2021.

Based on the observations, we noted that, despite the rather rapid clinical effect in patients, noted after one course of fermented milk bifidumbacterin, the microflora normalization occurred gradually after several courses. In addition, all patients without a positive effect underwent previous courses of treatment with other probiotics, including lyophilized preparations of bifidumbacterin and lactobacterin in standard doses.

DISCUSSION

Normal intestinal microflora performs and regulates many functions of the macroorganism. In this case, bifidobacteria and lactobacilli, possessing antagonistic properties, prevent the adhesion, growth and reproduction of pathogenic and conditionally pathogenic bacteria. Four of all the patients showed a sharp decrease in the indigenous flora, which resulted in an abundant colonization of the large intestine with facultative microorganisms. Given the active participation of normal microflora in the digestion process, in the regulation of gastrointestinal motility, in the synthesis of vitamins, amino acids, enzymes, hormones and other substances, as well as in stimulating the immunobiological status of the macroorganism, it becomes clear existing disturbances in the processes of digestion and assimilation of food in the examined patients.

The importance of the state of normal microflora is confirmed by the fact that negative phenomena have been eliminated against the background of its correction. Moreover, a positive effect was observed in all patients. Thus, due to the correction of disturbed microecology in patients after gastrectomy, not only the function of the gastrointestinal tract is normalized, but also the eubiosis of other biotopes is restored and the concomitant immunodeficiency is eliminated. The use of the technique developed by us is not accompanied by side effects and undesirable consequences. The results obtained allow us to recommend the use of the method of correction of the intestinal microflora in clinical practice, including in elderly and senile people with concomitant diseases.

CONCLUSION

In all patients after gastrectomy there are gross violations of the normal intestinal microflora, characterized as phase IV dysbiosis. Dysbiotic disorders correlate with the clinical manifestations of postgastrectomy disorders. Effective correction of microflora leads to the relief of clinical manifestations of postgastrectomy disorders, significantly improving the quality of life of patients. The timing of the course of treatment should be selected individually against the background of monitoring the state of the normal intestinal microflora.

ACKNOWLEDGEMENTS

We are grateful to the staff members of Bukhara State Medical Institute named after Abu Ali ibn Sinofor the cooperation and support in our research.

CONFLICT OF INTEREST

The authors declare that they have no competing interests.

FUNDING

No funding sources to declare

REFERENCES:

1. AbdullaevKh.N., Nurov J.R., KhalikovaF.Sh., Mamedov U.S. Neposredstvennye results of surgical treatment of gastric cancer // Problematic biology and medicine, 2019. № 4.2 (115). P. 7-10.
2. Adilova, I. G., Abdurakhmanov, M. M., &Abdurakhmanov, Z. M. (2020). Influence of age factor and age-associated predictors on remote results of coronary artery bypass grafting. [Vliianievozrastnogofaktoraivozrast-assotsiirovannykhprediktorovnaotdalennyerezul'tatykoronarnogoshuntirovaniia] AngiologiiaiSosudistaiaKhirurgiia = Angiology and Vascular Surgery, 26(4), 161-167. doi:10.33529/ANGIO2020414
3. Bakhronov, J. J., Teshaev, S. J., &Shodieva, M. S. (2020). Morphometric characteristics of parts of rat kidney nephron in normal and under the influence of an antiseptician-facility 2 road stimulator on the background of chronic radiating disease. International Journal of Pharmaceutical Research, 13(1), 683-686. doi:10.31838/ijpr/2021.13.01.102
4. Bondarenko VM, Boev BV, Lykova EA, Vorobiev AA Dysbacteriosis of the gastrointestinal tract.// Russian J. gastroenterol. hepatol. coloproctol. - 2010. - T.8. - No. 1. - P.66-70.
5. Davlatov, S., Rakhmanov K., Qurbonov N., Vafayeva I., &Abduraxmanov D. (2020). Current State of The Problem Treatment of Mirizzi Syndrome (Literature Review)// International Journal of Pharmaceutical Research, 12, – P. 1931-1939. DOI:https://doi.org/10.31838/ijpr/2020.SP2.340
6. Khudoiberdiev D.K. Yangitug`ilganoqkalamushoshqozoni macro-mikroskopikanatomiyasiningo`zigaxosxususiyatlari [Peculiarities of macro-microscopic anatomy of the stomach of the newborn white rat].//New day in medicine, 2020. № 2/1 (29/1). - P. 191-194 [in Uzbek].
7. Naimovna, S. G., Kurbanovna, A. U., Shukurloevna, N. M., &Jabborovna, A. I. (2020). Evaluation of the gastrointestinal mucosa by the OlgA system in chronic atrophic gastritis. Journal of Critical Reviews, 7(2), 409-413. doi:10.31838/jcr.07.02.80
8. Nurov J.R., KhalikovaF.Sh., Oshqozonsaratonibilanog`riganbemorlardajarrohlikdavolashningbevositanatijalari [Direct consequences of surgical treatment in patients with gastric cancer]// problems of Biology and Medicine, 2020. № (116). - P.139-142 [in Uzbek].
9. Oripov, F., Blinova, S., Dekhkanov, T., &Davlatov, S. (2020). Development of immune structures of the leaning intestine of rabbits in early postnatal ontogenesis. International Journal of Pharmaceutical Research, 13(1), 299-301. doi:10.31838/ijpr/2021.13.01.042
10. Thornton G., O'Sullivan M., O'Sullivan D. Et al. Human intestinal probiotic bacteria-production of antimicrobial factors // Ar. J. Med. Sci. - 2003. - Vol. 162. - No. 9. - P. 366.