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МЕЖДИСЦИПЛИНАРНЫЕ АСПЕКТЫ ЭНДОКРИННЫХ И МЕТАБОЛИЧЕСКИХ НАРУШЕНИЙ

1.	М.Х. Амриддинова, З.Ш. Азизова, Г.Ш. Негматова Тиреоидный гормональный и иммунологический профиль при различных ультразвуковых фенотипах аутоиммунного тиреоидита у женщин M.Kh. Amriddinova, Z.Sh. Azizova, G.Sh. Negmatova Thyroid hormonal and immunological profile in different ultrasound phenotypes of autoimmune thyroiditis in women M.X. Amriddinova, Z.Sh. Azizova, G.Sh. Negmatova Ayollarda autoimmun tireoiditning turli ultratovush fenotiplarida tireoid gormonal va immunologik profil.....	10
2.	Ш.А.Гаффарова, Т.Т.Атоев, Г.Ш.Негматова Современные методы диагностики остеопороза: от инструментальной оценки минеральной плотности до биохимических маркеров костного ремоделирования (Обзор литературы) Sh.A. Gaffarova, T.T. Atoev, G.Sh. Negmatova Modern methods of diagnosing osteoporosis: from instrumental assessment of bone mineral density to biochemical markers of bone remodeling (Literature review) Sh.A. Gaffarova, T.T. Atoev, G.Sh. Negmatova Osteoporozni tashxislashning zamonaviy usullari: mineral zichlikni instrumental baholashdan tortib, suyak remodellaniyashining biokimyoviy belgilarigacha (Adabiyotlar sharhi).....	15
3.	Х.Х. Гаффаров Гемодинамические предикторы ранней дисфункции миокарда при циррозе печени X.X. Gafforov Hemodynamic predictors of early myocardial dysfunction in liver cirrhosis X.X. Gafforov Jigar sirrozida erta miokard disfunktsiyasining gemodinamik prediktorlari.....	19
4.	Дусанов А. Д., Носирова Д. Э., Исмаилов Ж. А., Расули Ф.О., Уринова Х. У. Выявление степени воспалительной активности при неспецифическом язвенном колите и совершенствование лечебной стратегии A. D. Dusanov, D.E. Nosirovam J.A.Ismailov, F.O.Rasuli, Kh. U. Urinova Assessment of inflammatory activity and optimization of treatment tactics in nonspecific ulcerative colitis A. D. Dusanov, D.E. Nosirovam J.A.Ismailov, F.O.Rasuli, X.U.Urinova Nospetsifik yallig'lanishli kolitda yallig'lanish faolligini baholash va davolash strategiyasini takomillashtirish.....	22
5.	N.S. Kurbanova 2-tip qandli diabetda kechki asoratlarni kompleks reabilitatsiya asosida boshqarish samaradorligi H.C. Курбанова Эффективность комплексной реабилитации в управлении поздними осложнениями при сахарном диабете 2 типа N. S. Kurbanova Effectiveness of comprehensive rehabilitation in the management of late complications in type 2 diabetes mellitus	27
6.	Г.Ш. Негматова, Р.К. Абдуллоева, Ф.З. Урунова Распространённость и патогенетические особенности гипотиреоза в условиях йодного дефицита: данные по республике узбекистан (обзор литературы) G.Sh. Negmatova, R.K. Abdulloeva, F.Z. Urunova Prevalence and pathogenetic features of hypothyroidism under conditions of iodine deficiency: data from the republic of uzbekistan (literature review) G.Sh.Negmatova, R.K. Abdulloeva, F.Z. Urunova O'zbekiston hududida yod tanqisligi sharoitida gipoteriozning epidemiologik va patogenetik jihatlari (adabiyotlar sharhi)	31
7.	Г.Ш. Негматова, Ф.З. Урунова Персонализированный подход к коррекции метаболических и гормональных нарушений у женщин с синдромом поликистозных яичников (обзор литературы) G.Sh. Negmatova, F.Z. Urunova A personalized approach to the management of metabolic and hormonal disturbances in women with polycystic ovary syndrome (literature review) G.Sh. Negmatova, F.Z. Urunova Polikistik tuxumdon sindromi bo'lgan ayollarda metabolik va gormonal buzilishlarni korreksiya qilishning individual strategiyalari (adabiyotlar sharhi).....	35
8.	Г.Ш. Негматова, Д.М.Мукумжанова Персонализированный подход к диагностике и лечению пациентов с врождённой дисфункцией коры надпочечников G.Sh.Negmatova, D.M.Mukumjonova Personalized approach to the diagnosis and treatment of patients with congenital adrenal hyperplasia G.Sh.Negmatova, D.M.Mukumjonova Buyrak usti bezlari po'stloq qavatining tug'ma disfunktsiyasi bo'lgan bemorlarni tashxislash va davolashda shaxsiylashtirilgan yondashuv.....	39

9.	Г.Ш. Негматова, Т.У. Арипова, З.Ю. Халимова Цитокиновый профиль при аутоиммунном полигландулярном синдроме 2 типа: клинико-иммунологические аспекты G.Sh. Negmatova, T.U. Aripova, Z.Yu. Khalimova Cytokine profile in autoimmune polyglandular syndrome type 2: clinical and immunological aspects G.Sh. Negmatova, T.U. Aripova, Z.Yu. Xalimova Autoimmun poliglandulyar sindrom 2-tipida sitokin profili: klinik-immunologik jihatlar.....	44
10.	Г.Ш. Негматова, А.Д. Давранова Современные представления о регуляции нормального менструального цикла (обзор литературы) G.Sh. Negmatova, A.D. Davranova Modern concepts of the regulation of the normal menstrual cycle (literature review) G.Sh. Negmatova, A.D. Davranova Normal hayz siklini boshqarilishi haqidagi zamonaviy tushunchalar (adabiyotlar sharhi).....	49
11.	Г.Ш. Негматова, З.А. Халбаева Репродуктивные и андрологические последствия нарушений секреции пролактина у мужчин G.Sh. Negmatova, Z.A. Xalbayeva Reproductive and andrological consequences of prolactin secretion disorders in men G.Sh. Negmatova, Z.A. Xalbayeva Erkaklarda prolaktin sekretsiyasi buzilishlarining reproduktiv va andrologik oqibatlar.....	53
12.	Т.К. Нематуллоев Эндотелиальная дисфункция при метаболическом синдроме: роль ингибиторов SGLT2 T.K. Nematulloev Endothelial dysfunction in metabolic syndrome: the role of SGLT2 inhibitors T.K. Nematulloev Metabolik sindromda endotelial disfunksiya: SGLT2 ingibitorlarining roli.....	56
13.	Носирова Д.Э., Дусанов А.Д. важность иммунокоррективной терапии в лечении неспецифического язвенного колит D.E. Nosirova, A.D. Dusanov. The significance of immunocorrective therapy in the treatment of non-specific ulcerative colitis Nosirova D.E., Dusanov A.D. Nospesifik yarali kolitni davolashda immunokorrektiv terapiyaning ahamiyati.....	60
14.	С.А.Саидвалиева, Н.Ф.Рузимуродов, Г.Ш.Негматова Цитокиновый дисбаланс как ключевое звено иммунопатогенеза сахарного диабета 1 ТИПА у детей S.A.Saidvalieva, N.F.Ruzimurodov, G.Sh.Negmatova Cytokine Imbalance as a Key Link in the Immunopathogenesis of Type 1 Diabetes Mellitus in Children S.A.Saidvalieva, N.F.Ruzimurodov, G.Sh.Negmatova Bolalarda 1-tip qandli diabet immunopatogenezida sitokin disbalansi asosiy bo'g'in sifatida.....	63
15.	Д.Ш. Сабирова Изменения уровней кортизола и адренокортикотропного гормона у беременных и лактирующих самок крыс при хроническом воздействии цигалотрина D.Sh. Sabirova Alterations in cortisol and adrenocorticotrophic hormone levels in pregnant and lactating female rats under chronic cyhalothrin exposure D.Sh. Sabirova Homilador va laktatsiya davridagi urg'ochi kalamushlarda surunkali sigalotrin ta'sirida kortizol va adrenokortikotrop gormon darajalarining o'zgarishi.....	67
16.	Д.Э. Салимова Важность ранней диагностики и лечения врожденного гипотиреоза D.E. Salimova Importance of early diagnosis and treatment in congenital hypothyroidism D.E. Salimova Tug'ma gipotireozda erta tashxislash va davolashning ahamiyati.....	71
17.	Шоназарова Н.Х., Тoштемiров Б.Б. Особенности развития патологии сердечно-сосудистой системы у пациентов с хроническим аутоиммунным тиреоидитом Shonazarova N.X., Toshtemirov B.B. Features of cardiovascular pathology development in patients with chronic autoimmune thyroiditis Shonazarova N.X., Toshtemirov B.B. Surunkali autoimmun tireoidit bilan og'rigan bemorlarda yurak-qon tomir tizimi patologiyasining rivojlanish xususiyatlari	75



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ВЫЯВЛЕНИЕ СТЕПЕНИ ВОСПАЛИТЕЛЬНОЙ АКТИВНОСТИ ПРИ НЕСПЕЦИФИЧЕСКОМ ЯЗВЕННОМ КОЛИТЕ И СОВЕРШЕНСТВОВАНИЕ ЛЕЧЕБНОЙ СТРАТЕГИИ

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АННОТАЦИЯ

В статье представлены результаты изучения эффективности неинвазивных программ диагностики и терапии, направленных на улучшение качества жизни пациентов с неспецифическим язвенным колитом (НЯК). В исследование были включены 90 пациентов: первая группа (n=50) проходила определение фекального лактоферрина с использованием специального метода, что позволяло индивидуально корректировать тактику лечения, тогда как во второй группе (n=40) применялись стандартные методы диагностики и терапии. Эффективность предложенной программы оценивалась с помощью опросника SF-36. Результаты показали высокую клиническую эффективность комплексного подхода к диагностике у пациентов с НЯК. Практическая значимость исследования заключается в том, что оно закладывает основу для разработки новых, более эффективных методов диагностики и ведения пациентов.

Ключевые слова: Неспецифический язвенный колит, лактоферрин, лечение, реабилитация, улучшение качества жизни.

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NOSPETSIFIK YALLIG'LANISHLI KOLITDA YALLIG'LANISH FAOLLIGINI BAHOLASH VA DAVOLASH STRATEGIYASINI TAKOMILLASHTIRISH

ANNOTATSIYA

Ushbu maqolada noinvaziv diagnostika va terapiya dasturlarining samaradorligi, shuningdek, **nospetsifik yallig'lanishli kolit (NYSK)** bilan og'riqan bemorlarning hayot sifatini yaxshilashga qaratilgan tadqiqot natijalari taqdim etilgan. Tadqiqotga 90 nafar bemor jalb qilingan: birinchi guruh (n=50) maxsus usul yordamida fekal laktoferrin aniqlashdan o'tgan va bu shaxsiy davolash strategiyasini belgilash imkonini bergan, ikkinchi guruh (n=40) esa standart diagnostika va davolash usullarini olgan. Taklif etilgan dastur samaradorligi SF-36 so'rovnomasi yordamida baholangan. Natijalar **NYSK** bilan og'riqan bemorlar uchun kompleks diagnostika yondashuvining yuqori klinik samaradorligini ko'rsatdi. Tadqiqotning amaliy ahamiyati shundaki, u bemorlarni diagnostika qilish va davolashning yangi, samarali usullarini ishlab chiqishga asos yaratadi.

Kalit so'zlar: Nospetsifik yallig'lanishli kolit, laktoferrin, davolash, rehabilitatsiya, hayot sifatini yaxshilash.

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ASSESSMENT OF INFLAMMATORY ACTIVITY AND OPTIMIZATION OF TREATMENT TACTICS IN NONSPECIFIC ULCERATIVE COLITIS.

ANNOTATION

The article presents the results of a study on the effectiveness of non-invasive diagnostic and therapeutic programs aimed at improving the quality of life of patients with ulcerative colitis (UC). The study included 90 patients: the first group (n=50) underwent fecal lactoferrin determination using a specialized method, which allowed for individualized adjustment of treatment strategies, while the second group (n=40) received standard diagnostic and therapeutic methods. The effectiveness of the proposed program was evaluated using the SF-36 questionnaire. The results demonstrated high clinical effectiveness of a comprehensive diagnostic approach in patients with UC. The practical significance of the study lies in providing a foundation for the development of new, more effective methods for patient diagnosis and management.

Keywords: Ulcerative colitis, lactoferrin, treatment, rehabilitation, quality of life improvement.

Ulcerative colitis (UC) is a chronic inflammatory bowel disease characterized by immune-mediated inflammation of the colonic mucosa, erosions, and ulceration. The relapsing and progressive course of the disease, its long duration, and the high risk of severe complications make UC one of the urgent problems of modern gastroenterology. This disease is associated with a decrease in the ability to work, a deterioration in the quality of life, and the need for long-term treatment, and is of significant medical and socio-economic importance for the health system [3]. In recent years, the incidence of UC has been increasing worldwide. This is explained by changes in lifestyle, dietary habits, environmental factors, and impaired immune regulation. The fact that the disease is more common among young and working-age people further increases its social significance [1]. Therefore, early detection of UC, accurate assessment of inflammatory activity and development of effective treatment tactics are one of the priorities of modern medicine. In the pathogenesis of UC, the immune inflammatory process in the intestinal mucosa plays a leading role. This process occurs with the participation of neutrophils, lymphocytes, macrophages and various inflammatory mediators, leading to structural damage to the mucosa, disruption of the epithelial barrier function and changes in local microcirculation [2]. As a result, symptoms such as diarrhea, abdominal pain, tenesmus and intestinal bleeding are clinically manifested. The degree of disease activity is important in determining the severity of the clinical course, the risk of complications and treatment tactics. In

practice, the assessment of the activity of nonspecific ulcerative colitis is often carried out on the basis of clinical symptoms, laboratory indicators and endoscopic examinations [4]. However, clinical signs do not always fully reflect the true degree of inflammation in the intestinal mucosa. In some cases, endoscopic or histological activity may persist despite clinical remission. Endoscopic examinations are not always considered the optimal assessment method due to their invasiveness, patient discomfort, limitations in repeat procedures, and economic costs.

In this regard, in recent years, great attention has been paid to the introduction of non-invasive, reliable and reproducible methods for assessing inflammatory activity in nonspecific ulcerative colitis. In this regard, immunological biomarkers detected in feces are of particular scientific and practical interest. These biomarkers are important because they directly reflect neutrophilic inflammation in the intestinal mucosa, correlate well with endoscopic activity, and allow for the assessment of disease dynamics [5]. Assessment of inflammatory activity based on immunological biomarkers plays an important role in optimizing treatment tactics. This approach allows for early detection of therapy efficacy, individual selection of drug doses, timely escalation or reduction of treatment, and avoidance of unnecessary invasive examinations. In addition, biomarker-based monitoring helps to achieve stable control of the disease and reduce the risk of long-term complications. Thus, the study of modern and noninvasive methods for

assessing inflammatory activity in NSCLC and optimizing treatment tactics based on these indicators is an urgent scientific and practical issue [6]. This study aims to determine the clinical significance of assessing inflammatory activity in patients with NSCLC and to explore the possibilities of increasing treatment effectiveness based on the results obtained.

Research materials and methods

This study aimed to assess the activity of inflammation in patients with NyaK and optimize treatment tactics based on these indicators, and was conducted as a prospective, open and comparative clinical study. The study was conducted on the basis of Samarkand City Hospital No. 1 during 2022–2025. A total of 90 patients with a confirmed diagnosis of NyaK were recruited for the study. Patients were divided into two groups. Group 1 (main group) included 50 patients, in whom inflammatory activity was assessed based on immunological biomarkers detected in feces, and treatment tactics were individualized in accordance with these indicators. Group 2 (control group) included 40 patients, in whom the effectiveness of treatment was assessed based on traditional clinical, laboratory and endoscopic criteria. The age of the patients ranged from 25 to 68 years, and patients with mild and moderate disease activity were included in the study. Patients with severe forms of IBD, acute intestinal infections, intestinal oncological diseases, pregnancy, as well as other severe somatic diseases were excluded from the study. At the beginning of the study, disease activity in all patients was assessed based on clinical signs (frequency of diarrhea, intestinal bleeding, abdominal pain), general laboratory parameters, and endoscopic examination results. Generally accepted clinical indices and scales were used to determine clinical activity. Immunological biomarkers were determined in feces in group 1 patients for non-invasive assessment of inflammatory activity. Stool samples were collected in sterile containers and delivered to the laboratory according to established rules. The amount of fecal lactoferrin was determined using a semi-automatic immunoenzyme assay (IFA, ELISA) using standard test kits. The study used the “sandwich-ELISA” principle based on the antigen-antibody reaction. Optical density values were read in a microplate reader at a wavelength of 450 nm and the results were

calculated based on the calibration curve recommended by the manufacturer. In group 2, inflammatory biomarkers were not tested, but were assessed based on the results of general laboratory and endoscopic examinations. Fecal lactoferrin levels were compared with clinical and endoscopic results. In group 1, treatment tactics were revised depending on the level of biomarkers, i.e., the doses of basic therapy were optimized or additional drugs were prescribed. A decrease in biomarkers was considered a positive sign of reduced inflammatory activity and treatment effectiveness. Treatment was carried out in all patients in accordance with current national and international clinical recommendations. During the study, patients were under dynamic observation, and their clinical condition and laboratory parameters were reassessed at regular intervals. Statistical processing of the obtained data was carried out using modern statistical programs. The results were expressed as mean values and standard deviations. Student’s t-test or Mann–Whitney test was used for intergroup comparisons, and paired t-test or Wilcoxon test was used for dynamic indicators. The relationship between clinical and laboratory parameters was determined using correlation analysis. The level of statistical significance was considered $p < 0.05$.

Research results and its discussion.

After rehabilitation, the correlation between SF-36 and external respiratory function (spirographic parameters) in patients with bronchial asthma was assessed. The results of the analysis conducted in group 1 (n=50) patients revealed a strong positive correlation between physical and mental state according to the SF-36 questionnaire and spirometric parameters, in particular FEV₁ (%), FVC (%), and PEF. A reliable correlation was observed between the SF-36 physical activity index and FEV₁ (%) at the level of $r = 0.72–0.78$, and between the SF-36 mental health index and FEV₁ at the level of $r = 0.68–0.75$ ($p < 0.01$). It was found that as the airway patency improved as a result of rehabilitation interventions, the quality of life of patients also increased in parallel. In contrast, only moderate or weak correlations were noted between SF-36 scores and spirometric parameters in patients in group 2 (n=40).

Davolashdan oldingi korrelyatsiya ($r = 0.81, p = 0.000$)

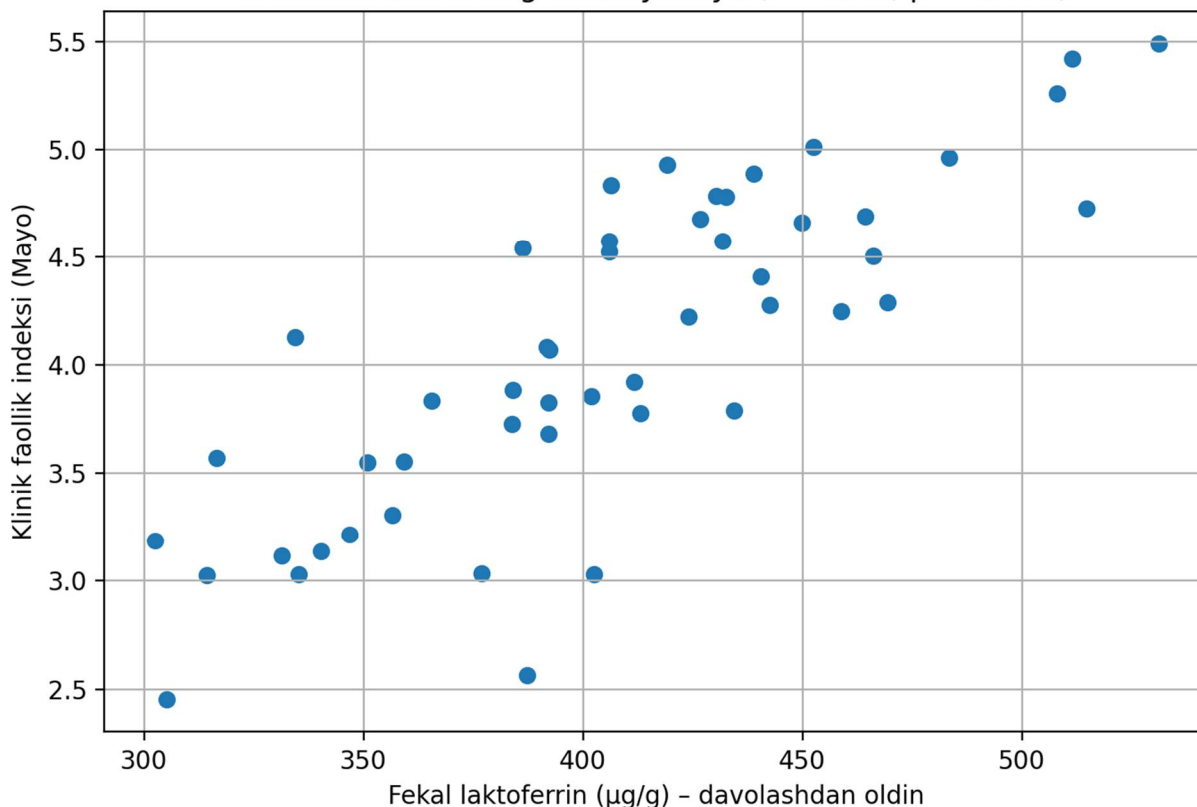


Figure 1. First group Correlation results of patients before procedures

According to the results of the correlation analysis conducted before treatment, a significant positive correlation was found between the level of fecal lactoferrin and the clinical activity index of nonspecific ulcerative colitis. The high correlation coefficient indicates that as the level of fecal lactoferrin increases, clinical symptoms also increase in parallel. This statistically significant relationship ($r < 0.05$) confirms that fecal lactoferrin is a sensitive and reliable biomarker reflecting disease activity. The positive correlation found indicates that active neutrophilic inflammation in the intestinal mucosa is directly related to clinical manifestations. High levels of fecal lactoferrin reflect the inflammatory process in the intestinal mucosa, impaired barrier function, and as a result, are manifested by clinical symptoms such as diarrhea, intestinal

bleeding, and abdominal pain. This indicates that fecal lactoferrin is not only a laboratory indicator, but also a biomarker that directly reflects the pathogenesis of the disease. The close relationship between fecal lactoferrin and clinical activity in the pre-treatment phase justifies the use of this biomarker in assessing the initial activity of the disease. This is important for pre-treatment stratification of patients, determining the severity of the disease, and choosing an individual treatment regimen. According to the results of the correlation analysis, fecal lactoferrin is a clinically and scientifically valid biomarker for assessing inflammatory activity in nonspecific ulcerative colitis and confirms the feasibility of including it in pre-treatment assessment algorithms.

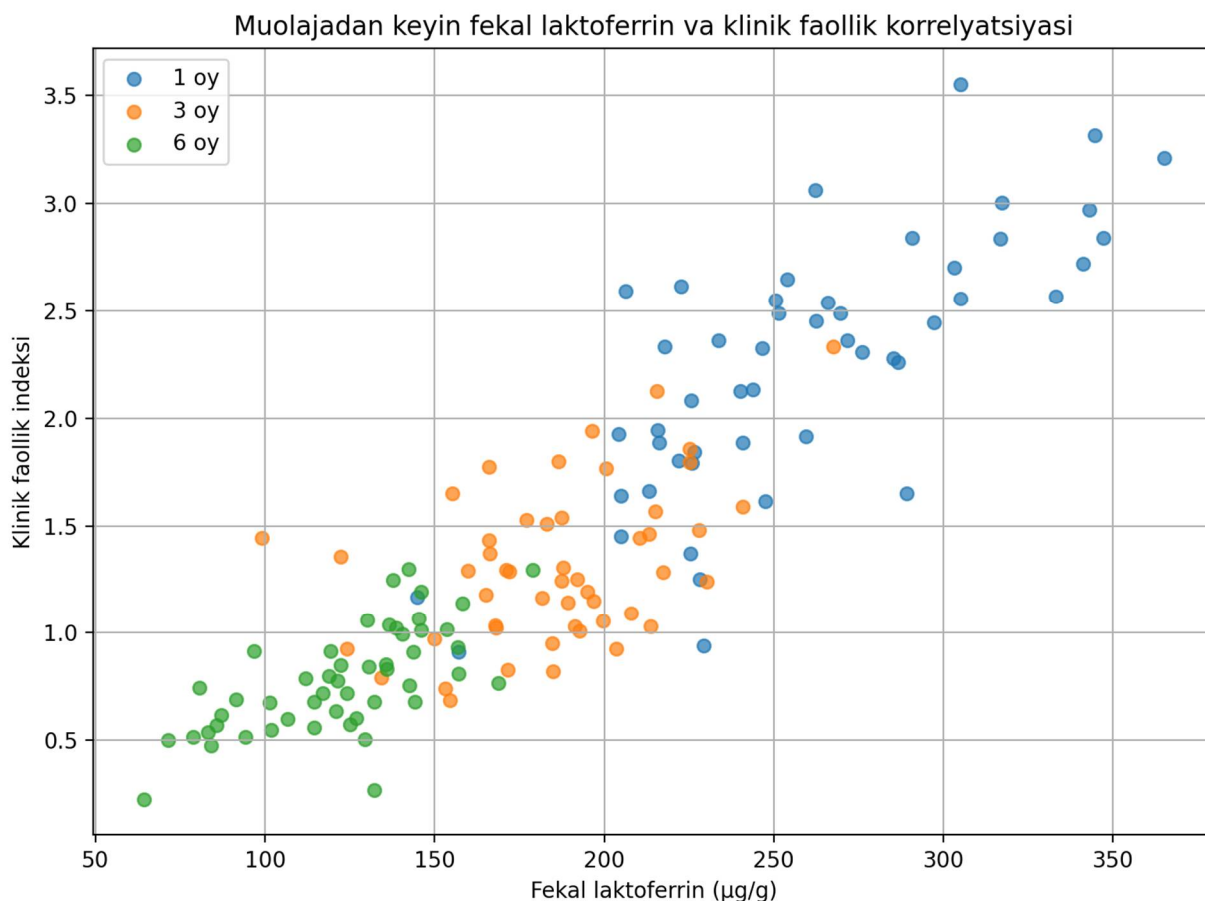


Figure 2. First group Correlation results of patients during the follow-up period

In the diagram in the second figure above, changes in fecal lactoferrin levels and their relationship with clinical status were assessed by correlation analysis at 1, 3, and 6 months after treatment. The results of the study showed a gradual decrease in intestinal inflammatory activity after treatment and a clear correlation between these changes and clinical improvement. One month after treatment, fecal lactoferrin levels maintained a moderate positive correlation with clinical activity indicators ($p < 0.05$). This indicates that the inflammatory process did not completely stop in the early period after the start of treatment, but its activity was significantly reduced. The fact that the decrease in fecal lactoferrin levels occurred simultaneously with the improvement of clinical symptoms at this stage confirms the possibility of using this biomarker as a tool for assessing early response to treatment. Three months after treatment, the positive correlation between fecal lactoferrin and clinical activity indicators weakened, but remained statistically significant ($p < 0.05$). During this period, a steady decrease in inflammatory activity was observed in most patients and

they approached clinical remission. The decrease in fecal lactoferrin levels indicated a significant decrease in neutrophilic inflammation in the intestinal mucosa. After 6 months of treatment, the correlation between fecal lactoferrin levels and clinical activity indicators decreased to a minimal or insignificant level ($p > 0.05$). This indicates that clinical and laboratory remission was achieved in the majority of patients, and the inflammatory process was under control. Normalization or near-normal values of fecal lactoferrin were considered an important indicator of long-term effectiveness of treatment. Thus, correlation analysis of results at 1, 3, and 6 months after treatment showed that fecal lactoferrin is a sensitive and reliable biomarker for monitoring inflammatory activity in inflammatory bowel disease. The gradual decline in fecal lactoferrin levels and its weakening correlation with clinical status confirm the feasibility of using this indicator to objectively assess treatment efficacy, improve treatment strategies, and achieve sustainable disease control.

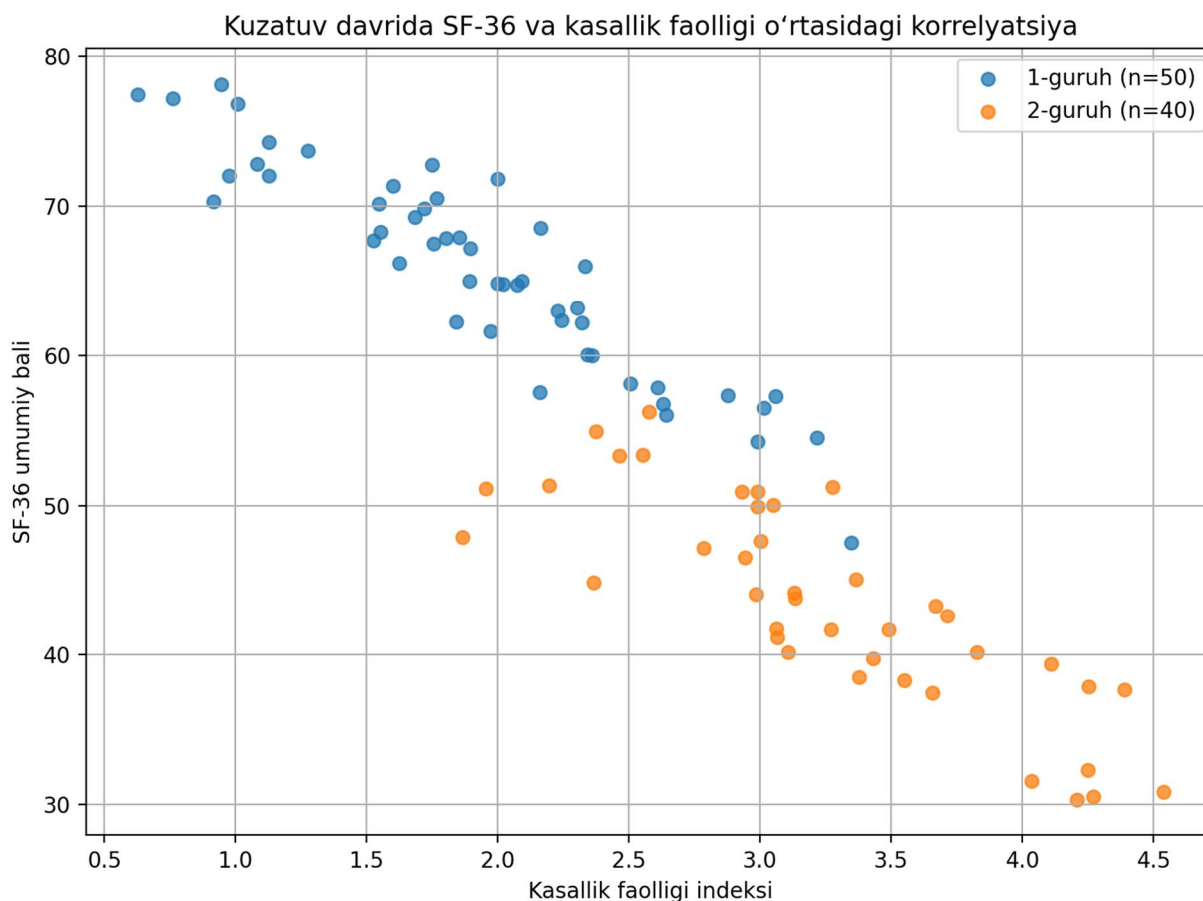


Figure 3. Quality of life scores of patients in both groups.

During the follow-up period, the SF-36 questionnaire scores were analyzed to assess the quality of life of patients in groups 1 and 2, and their relationship with disease activity and clinical status was studied through correlation analysis. The main domains of the SF-36, including physical activity (JF), general health (USS), vitality (HQ), social activity (IF), and mental health (RSS), were considered separately. In group 1 patients, in whom treatment strategies were individualized based on biomarkers, a significant negative correlation was found between SF-36 scores and disease activity ($p < 0.05$). That is, with a decrease in inflammatory activity, an increase in SF-36 scores was observed. In particular, a high level of correlation was noted in the domains of physical activity, general health, and vitality. This indicates that the effectiveness of treatment is reflected not only in clinical and laboratory indicators, but also in subjective measures of quality of life of patients. In patients in group 2, the relationship between SF-36 scores and disease activity was weak or moderate, and in some areas it did not reach statistical significance ($p > 0.05$). In this group, the improvement

in SF-36 scores was slower, and uneven changes were observed in some components of quality of life. This is explained by the fact that the treatment method was based only on clinical criteria. The results of the correlation analysis showed that in patients in group 1, SF-36 scores were closely related to clinical and laboratory improvement, which ensured a stable increase in quality of life. In group 2, the recovery of quality of life indicators against the background of clinical improvement was not complete and consistent.

Thus, the correlation analysis conducted during the observation period showed that a personalized approach to treatment based on biomarkers significantly improves the quality of life of patients. The results of the SF-36 questionnaire improved in parallel with the decrease in disease activity, which confirms the clinical and social effectiveness of this approach. The practical significance of this study is that it can serve as a scientific basis for the introduction of individual approaches to the treatment of NCDs in the health system.

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