

A collage of medical-related items. In the foreground, a stethoscope lies on a white surface. To its left is a diagram of a human heart. Behind the stethoscope is a blue plate. In the background, several open books and papers are visible, some with text and tables. A text box in the bottom right corner contains the text "VOLUME 2, ISSUE 3/1" and "2025".

VOLUME 2, ISSUE 3/1

2025

2025

<https://tadqiqot.uz/index.php/spjacd>

ACD
2024

ISSN 3030-3877

DOI Journal 10.26739/3030-3877

ANNALS OF CLINICAL DISCIPLINE

2 ЖИЛД, 3/1 СОН

АННАЛЫ КЛИНИЧЕСКИХ ДИСЦИПЛИН

ТОМ 2, НОМЕР 3/1

КЛИНИК ФАНЛАР ЙИЛНОМАСИ

VOLUME 2, ISSUE 3/1



ТОШКЕНТ-2025

ANNALS OF CLINICAL DISCIPLINE

АННАЛЫ КЛИНИЧЕСКИХ ДИСЦИПЛИН | КЛИНИК ФАНЛАР ЙИЛНОМАСИ

№3/1 (2025) DOI <http://dx.doi.org/10.26739/0000-0000-2025-3/1>

BOSH MUHARRIR: | ГЛАВНЫЙ РЕДАКТОР: | CHIEF EDITOR:

Sh. J. Teshayev

“Klinik fanlar yilnomasi” jurnali bosh muharriri, Buxoro davlat tibbiyot instituti rektori, t.f.d., professor

BOSH MUHARRIR O'RINBOSARI: | ЗАМЕСТИТЕЛЬ
ГЛАВНОГО РЕДАКТОРА: | DEPUTY CHIEF EDITOR:

D. A. Xasanova

“Klinik fanlar yilnomasi” jurnali bosh muharrir o'rinbosari, Buxoro davlat tibbiyot instituti anatomiya va klinik anatomiya kafedrasida professori, DSc

РЕДАКЦИОННАЯ КОЛЛЕГИЯ:

- **U.K. Abdullayeva** - “Klinik fanlar yilnomasi” jurnali mas'ul kotibi, Buxoro davlat tibbiyot instituti fakultet va gospital terapiya, nefrologiya va gemodializ kafedrasida dotsenti, DSc;
- **M.J. Sanoyeva** - Buxoro davlat tibbiyot instituti nevrologiya kafedrasida dotsenti, DSc
- **A.G. Gadayev** - Toshkent tibbiyot akademiyasi 3-son ichki kasalliklar kafedrasida professori, t.f.d.
- **A.R. Obloqulov** - Buxoro davlat tibbiyot instituti, yuqumli kasalliklar va bolalar yuqumli kasalliklari kafedrasida mudiri, t.f.d., professor
- **D.A. Nabiyeva** - Toshkent tibbiyot akademiyasi, 1-son fakultet va gospital terapiya, kasb kasalliklari kafedrasida mudiri, t.f.d., professor
- **Sh.T. O'roqov** - Buxoro davlat tibbiyot instituti xirurgik kasalliklar kafedrasida mudiri, DSc, dotsent
- **M.M. Karimov** - Respublika ixtisoslashtirilgan terapiya va reabilitatsiya ilmiy-amaliy tibbiyot markazi “Gastroenterologiya” ilmiy laboratoriyasi boshlig'i, t.f.d., professor
- **N.U. Narzullayev** - Buxoro davlat tibbiyot instituti otorinolaringologiya kafedrasida professori, DSc
- **G.N. Sobirova** - Toshkent tibbiyot akademiyasi reabilitatsiya va jismoniy tarbiya kafedrasida professori, t.f.d.
- **F.S. Raupov** - Buxoro davlat tibbiyot instituti bolalar xirurgik kasalliklari kafedrasida mudiri, DSc, dotsent
- **Sh.B. Axrorova** - Buxoro davlat tibbiyot instituti, nevrologiya kafedrasida dotsenti, DSc.
- **V.R. Akramov** - Buxoro davlat tibbiyot instituti travmatologiya va neyroxirurgiya kafedrasida mudiri, DSc, dotsent
- **I.K. Sadullojeva** - Buxoro davlat tibbiyot instituti bolalar kasalliklari propedevikasi va bolalar nevrologiyasi kafedrasida mudiri, DSc, dotsent

РЕДАКЦИОННЫЙ СОВЕТ:

- **G.J. Jarilkasimova** - Buxoro davlat tibbiyot instituti oilaviy shifokorlarni qayta tayyorlash kafedrasida professori, DSc
- **U.S. Mamedov** - Buxoro davlat tibbiyot instituti onkologiya kafedrasida mudiri, DSc, dotsent
- **A.A. Saidov** - Buxoro davlat tibbiyot instituti ortopedik stomatologiya va ortodontiya kafedrasida professori DSc
- **N.N. Karimova** - Buxoro davlat tibbiyot instituti 3-son akusherlik va ginekologiya kafedrasida mudiri, DSc, dotsent
- **U.K. Qayumov** - tibbiyot xodimlarini kasbiy malakasini oshirish markazi ichki kasalliklar kafedrasida mudiri, t.f.d., professor
- **M.E. Raximova** - Toshkent tibbiyot akademiyasi, 3-son ichki kasalliklar kafedrasida dotsenti, t.f.d.
- **R.I. To'raqulov** - Toshkent tibbiyot akademiyasi, 3-son ichki kasalliklar kafedrasida professori, t.f.d.
- **Ch.S. Pavlov** - I.M. Sechenov nomidagi birinchi Moskva davlat tibbiyot universiteti terapiya kafedrasida mudiri, t.f.d., professor
- **L.B. Novikova** - Rossiya Federatsiyasi Sog'liqni saqlash vazirligining “Janubiy Ural davlat tibbiyot universiteti” federal davlat byudjet oliy ta'lim muassasasi dermatovenerologiya kafedrasida professori, t.f.d.
- **O.I. Letyayeva** - Rossiya Federatsiyasi Sog'liqni saqlash vazirligining “Janubiy Ural davlat tibbiyot universiteti” federal davlat byudjet oliy ta'lim muassasasi dermatovenerologiya kafedrasida professori, t.f.d.
- **I.V. Reverchuk** - I.Kant nomidagi Boltiq federal universiteti psixonevrologiya va psixosomatika kafedrasida mudiri, t.f.d., professor
- **Edip Gonullu** - Izmir Bakirchay universiteti anesteziya va reanimatsiya kafedrasida dotsenti, t.f.d.
- **Eva Lietto** - Italiya Campania universiteti “Luigi Vanvitelli”ning tarjima tibbiyot fanlari kafedrasida mudiri, t.f.d., professor

Журнал включен в перечень ВАК национальных научных изданий, рекомендуемых для публикации основных научных результатов диссертаций по медицинским наукам постановлением № 369/6 от 5 апреля 2025 г.

© Page Maker | Верстка | Сахифаловчи: Хуршид Мирзахмедов

О журнале

Журнал зарегистрирован в Агентство информации и массовых коммуникаций при Администрации Президента Республики Узбекистан
№ С-239963 от 14 марта 2024 года

Адрес редакции: Республика Узбекистан, 200114,
г. Бухара, ул. Гиждуван, 23
Телефон: +998(65)2230050
Сайт: <https://tadqiqot.uz/index.php/spjacd>
e-mail: abumkur14@gmail.com

1. Abdullayeva U.K., Rakhimova M.B. Pomegranate seed oil for ulcerative colitis.....	7
2. Abdurakhmonova Q., Rakhimbaeva G. Inflammatory biomarkers and insulin resistance in acute ischemic stroke of different etiologies...	12
3. Boymuradov Sh.A., Khatamov U.A. Biomechanical and clinical analysis of atypical counterforces in maxillofacial trauma from electromechanical impacts.....	19
4. Baymuratova A.Ch. Tizza bo'g'imi ichki strukturalari jarohatlanishlarini utt orqali klinik baholash va fizioterapevtik reabilitatsiyani optimallashtirish	26
5. Boboyev Sh.R., Saidov G.N., Keldiyorova Z.D. Tajribaviy oshqozon-ichak traktining sirka kislotasi bilan kimyoviy kuyishida yo'g'on ichak devoridagi morfologik o'zgarishlarning qiyosiy tavsifi.....	32
6. Jumaeva G.A. Klinik farmakologiyada innovatsion o'quv modeli: talaba markazli yondashuv.....	38
7. Keldiyorova Z.D., Zaripova S.O. O'tkir respirator virusli infeksiyalar va torch- infeksiyasi bilan kasallangan bolalarda klinik-laborator o'zgarishlar.....	43
8. Khalikova F.Sh. Morphological structure of the thyroid gland of white rats in chemotherapy of breast cancer.....	51
9. Mirzayeva M.R., Yodgorova M.Sh. Latent course of liver fibrosis in patients with chronic hepatitis B: comparative evaluation of noninvasive diagnostic methods (APRI, FIB-4 and fibroscan).....	58
10. Muradimova A.R., Madjidova Y.N., Khidoyatova D.N., Sharipov F.R. Bioacoustic correction of cognitive impairment in stroke patients.....	69
11. Najmutdinova D.Q., Ismoilova Sh.S. 2-tur natriy-glyukoza kotransportyori ingibitorlarini qo'llashda jigar fibroz ko'rsatkichlari va insulinga rezistentlik dinamikasi.....	74
12. Nazirxujayev F.A. Farg'ona viloyati aholisi orasida "O'rta yer dengizi parxezi"ni qo'llash orqali surunkali pankreatit xurujlari profilaktikasini optimallashtirish.....	79
13. Nurmatova O.A. Bolalarda nefrotik sindromning profilaktikasini takomillashtirish yo'llari (Farg'ona viloyati misolida).....	84
14. Ortiqboev J.O. Molecular genetic analysis of the renin–angiotensin system in chronic kidney disease.....	89

15. Oxunova M.J.	
Farg'ona viloyatida 3 yoshgacha bolalarda pnevmoniya rivojlanishiga ta'sir etuvchi asosiy xavf omillari.....	95
16. Rasulova N.R. Temirova N.R.	
Tajribaviy kimyoterapiya natijasida ayrisimon bezdagi morfologik o'zgarishlarning qiyosiy tahlili.....	99
17. Raxmatullayeva G.K., Axmedova N.A., Kasimova M.B., Xudayberganova N.X.	
Oshqozon-ichak kasalliklarida so'rovnomaga o'tkazish va uni o'rganish.....	108
18. Subkhanova Z.S., Raimkulova N.R.	
Interrelationship between gastroesophageal reflux disease and respiratory diseases: general pathogenetic mechanisms and modern research findings.....	112
19. Subxanova Z.S., Raimkulova N.R.	
Gastroezofageal reflyuks kasalligi, surunkali obstruktiv o'pka kasalligi va bronxial astma: komorbidlikning dolzarb masalalari.....	115
20. Temirova M.B., Kasimova M.B., Axmedova N.A.	
Metabolik assotsirlangan jigar yog' kasalligida bemorlarning tana tuzilishini bioimpedance spektroskopiya yordamida baholash.....	118
21. Tukhtaeva N.Kh., Musayev H.N.	
Development of gastropathy against the background of nonsteroidal anti-inflammatory drugs in patients with rheumatoid arthritis against the background of virulent genes of helicobacter pylori.....	123
22. Абдуллаева У.К., Рахимова М.Б.	
Ярали колит хавф омиллари: замонавий қарашлар.....	128
23. Абдулхаков И.У., Абдулхаков М.И.	
Общеврачебная практика как эффективная модель профилактики неинфекционных заболеваний.....	132
24. Адизова С.Р., Носирова З.Ж.	
Преэклампсия оғирлашувида гемостаз тизимининг таъсири.....	143
25. Акрамов О.З., Аблязов О.В., Кадыров Ш.У.	
Инновационные подходы нейровизуализации при опухолях функционально важных участков мозга у детей.....	149
26. Аликулова Н.А., Ўринова Г.М.	
Мия инфаркти ва СМИ ўтказган беморларда клиник-функционал кўрсаткичлар динамикаси.....	156
27. Алимов А.А., Алимов А.В., Шарипов А.М., Шоикрамов Ш.Ш.	
Профиль инотропной поддержки у детей после коррекции врождённых пороков сердца: частота, дозы и динамика применения.....	166
28. Аллокулов Р.Р., Акрамов В.Р., Нуралиев Ф.Н.	
Кекса ва қари ёшдаги шахсларда гонартрознинг клиник-иммунологик жиҳатлари.....	172

29. Асадов Х.Ф.

Хирургия мигрени: сравнительный анализ двух хирургических методик лечения височной мигрени: нейроэктомия и декомпрессия ветви скуловисочного нерва.....182

30. Аскарров Ш.Ш., Салахитдинов Ш.Н.

Перспективные интервенционные технологии при тромботических осложнениях острого коронарного синдрома.....187

31. Гадаев А., Халимова Х., Гадаева Н.

Ўпканинг сурункали обструктив касаллиги ва артериал гипертензияда буйраклар дисфункцияси (адабиётлар шархи).....193

32. Гаффорова В.Ф., Ходжиева Д.Т.

Клинико-нейрофизиологические характеристики фебрильных судорог у детей.....200

33. Давлетова Ш.Б.

Роль микробиоты кишечника в развитии неврологических заболеваний у детей.....205

34. Даминов Б.Т., Ортикбоев Ж.О.

Уровень витаминов группы В и витамина Д у больных с хронической болезнью почек в зависимости от прогрессирования заболевания.....216

35. Джураев И.Б., Курбанов О.М., Бабаназаров У.Т.

Клинические проявления патологий желудка у больных в критическом состоянии в условиях искусственного дыхания.....221

36. Жалалова В.З.

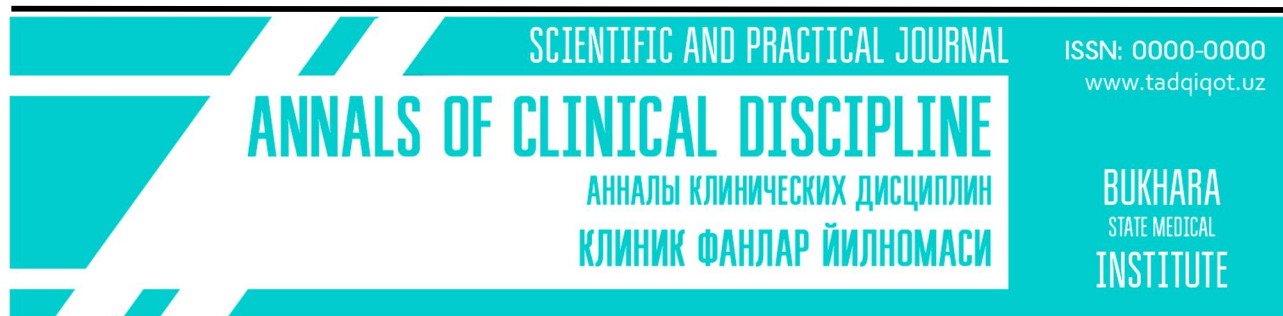
Оптимизация восстановительных процессов при физических нагрузках с помощью спирулины: морфофункциональные и клинические аспекты.....229

37. Ибодуллаева Н.М.

Бачадон саратон олди касалликлари бўлган аёлларда неврологик ва психоэмоционал ўзгаришларнинг психосоматик жиҳатлари.....237

38. Иноятлов А.Ш., Ражаматов Т.Р., Умаров Б.Я.

Функциональная и иммунологическая обоснованность применения щечного жирового лоскута при палатопластике в детском возрасте.....241

¹Tukhtaeva N.Kh., ²Musayev H.N.¹<https://orcid.org/0009-0006-8181-041X>²<https://orcid.org/0009-0005-6533-8568>

Tashkent State Medical University, Tashkent, Uzbekistan

DEVELOPMENT OF GASTROPATHY AGAINST THE BACKGROUND OF NONSTEROIDAL ANTI-INFLAMMATORY DRUGS IN PATIENTS WITH RHEUMATOID ARTHRITIS AGAINST THE BACKGROUND OF VIRULENT GENES OF HELICOBACTER PYLORI

 <http://dx.doi.org/10.5281/zenodo.17352845>

ABSTRACT

The article provides data on the result of a molecular genetic study of the genotypic characteristics of *Helicobacter pylori* in the formation of NSAIDs of gastropathy in patients with rheumatoid arthritis. Purpose of the study. Molecular-genetic study of the genotypic features of *H. pylori* in the formation of NSAID gastropathy in RA patients for the prevention of gastroduodenal lesions. Materials and research methods. The research is based on the genomic DNA of *H. pylori*, isolated from a biopsy of the antrum of 82 patients with RA and 22 healthy individuals. The genotype of *H. pylori* CagA, vacam1, vacam2, vacAs1, vacas2, vacas1b, vacas1c, icea1, icea2, HP was determined in biopsy samples. Results. Thus, according to the molecular genetic study, the pathogenic strain VacA m2 ($\chi^2=4,12$ $p=0.011$), IceA 2 ($=6,71$ $p=0.036$) prevails in patients with RA of the 2nd degree of activity. Conclusion. Our preliminary results suggest that the *H. Pylori* vaca m2 and icea 2 may be considered as additional markers of NSAID-gastropathy in rheumatoid arthritis.

Keywords: *H. Pylori*, rheumatoid arthritis, gastropathies, pcr, molecular genetic study.

Тухтаева Н.Х., Мусаев Х.Н.

Ташкентский государственный медицинский университет, Ташкент, Узбекистан

РАЗВИТИЕ ГАСТРОПАТИИ НА ФОНЕ НЕСТЕРОИДНЫХ ПРОТИВОВОСПАЛИТЕЛЬНЫХ СРЕДСТВ У БОЛЬНЫХ РЕВМАТОИДНЫМ АРТРИТОМ НА ФОНЕ ВИРУЛЕНТНЫХ ГЕНОВ HELICOBACTER PYLORI

АННОТАЦИЯ

В статье приводятся данные о результате молекулярно-генетического исследования генотипических особенностей *Helicobacter pylori* в формировании НПВС гастропатии у больных с ревматоидным артритом. Цель исследования. Молекулярно-генетическое исследование генотипических особенностей *Helicobacter pylori* в формировании НПВС гастропатии у больных РА с целью профилактики гастродуоденальных поражений. Материалы и методы исследования. Материалом исследования послужила геномная ДНК *H. pylori*., выделенная из биоптата антрального отдела желудка 82 больных РА и 22 здоровых

лиц. В биопсийных образцах определяли генотип *H.pylori* *cagA*, *vacAm1*, *vacAm2*, *vacAs1*, *vacAs2*, *vacAs1b*, *vacAs1c*, *iceA1*, *iceA2*, *HP*. Результаты. По данным молекулярно-генетического исследования у больных с РА 2 степени активности превалирует патогенный штамм *VacA m2* ($\chi^2=4,12$ $p=0.011$), *IceA 2* ($\chi^2=6,71$ $p=0.036$). Заключение. Полученные предварительные результаты позволяют предположить, что гены *H. Pylori VacA m2* и *IceA 2* могут рассматриваться как дополнительные маркеры возникновения НПВС-гастропатии при ревматоидном артрите.

Ключевые слова: *H. pylori*, ревматоидный артрит, гастропатия, пцр, молекулярно-генетическое исследование.

Тухтаева Н.Х., Мусаев Х.Х.

Тошкент давлат тиббиёт университети, Тошкент, Ўзбекистон

РЕВМАТОИД АРТРИТ БИЛАН ОҒРИГАН БЕМОРЛАРДА HELICOBACTER PYLORI ВИРУЛЕНТ ГЕНЛАРИ ФОНИДА НОСТЕРОИД ЯЛЛИҒЛАНИШГА ҚАРШИ ДОРИЛАР ТАЪСИРИДА ГАСТРОПАТИЯНИНГ РИВОЖЛАНИШИ

АННОТАЦИЯ

Мақолада ревматоид артрит билан оғриган беморларда ностероид яллиғланишга қарши дори воситалари (НЯҚДВ) гастропатияси шаклланишида *Helicobacter pylori* генотипик хусусиятларининг молекуляр-генетик тадқиқот натижалари келтирилган. Тадқиқот мақсади: РА билан оғриган беморларда гастродуоденал шикастланишларнинг олдини олиш учун НЯҚДВ гастропатияси шаклланишида *Helicobacter pylori* генотипик хусусиятларини молекуляр-генетик ўрганиш. Тадқиқот материаллари ва усуллари: Тадқиқот материали сифатида 82 нафар РА билан касалланган бемор ва 22 нафар соғлом шахснинг ошқозон антрал қисмидан олинган биоптатдан ажратиб олинган *H. pylori* геномик ДНКси хизмат қилди. Биопсия намуналарида *H.pylori cagA*, *vacAm1*, *vacAm2*, *vacAs1*, *vacAs2*, *vacAs1b*, *vacAs1c*, *iceA1*, *iceA2*, *HP* генотиплари аниқланди. Натижалар: Молекуляр-генетик тадқиқот маълумотларига кўра, 2-даражали фаолликка эга РА билан оғриган беморларда *VacA m2* ($\chi^2=4,12$ $p=0,011$) ва *IceA 2* ($\chi^2=6,71$ $p=0,036$) патоген штаммлари устунлик қилади. Хулоса: Олинган дастлабки натижалар шуни кўрсатадики, *H. pylori VacA m2* ва *IceA 2* генлари ревматоид артритда НЯҚДВ гастропатияси пайдо бўлишининг қўшимча маркерлари сифатида қаралиши мумкин. Натижалар. Молекуляр-генетик тадқиқот маълумотларига кўра, фаоллик даражаси 2 бўлган РА билан оғриган беморларда *VacA m2* ($\chi^2=4,12$ $p=0,011$), *IceA 2* ($\chi^2=6,71$ $p=0,036$) патоген штамми устунлик қилади. Хулоса. Олинган дастлабки натижалар *H. pylori* бактериясининг *VacA m2* ва *IceA 2* генларини ревматоид артритда ностероид яллиғланишга қарши воситалар (НЯҚДВ) гастропатияси ривожланишининг қўшимча белгиловчилари сифатида кўриб чиқиш мумкинлигини тахмин қилишга имкон беради.

Калит сўзлар: *H. pylori*, ревматоид артрит, гастропатия, ПЗР, молекуляр-генетик текширув.

Introduction. Rheumatoid arthritis (RA) is a progressive autoimmune disease of unknown etiology with predominant joint damage, characterized by the development of chronic erosive arthritis and frequent systemic inflammation of internal organs [1]. NSAIDs are an important component of the complex therapy of rheumatic diseases. At least 68.5% of patients with rheumatoid arthritis are constantly taking NSAIDs [2]. Therefore, among patients with RA, the highest incidence of NSAID-associated gastropathy, erosive and ulcerative lesions complicated by gastrointestinal bleeding and other complications [3]. Therefore, the use of non-steroidal anti-inflammatory drugs (NSAIDs) is also a factor in ulcerogenesis. However, the influence of pathogenic factors of *H. pylori* on the likelihood of erosive and ulcerative damage to the gastroduodenal zone induced by NSAID intake has not been sufficiently studied.

Numerous studies have focused on the prevalence and role of putative *H. pylori* virulence genes in the pathogenesis of diseases. The genomic sequence of *H. pylori* is very diverse and is a powerful tool for understanding evolution and disease, for identifying factors that cause a higher risk of severe consequences, and for finding new approaches to therapy [4, 11]. Assessment of the pathogenicity of *Helicobacter pylori* is relatively difficult, as *H. pylori* isolates exhibit a high degree of geographic variation, with certain *H. pylori* genotypes associated with a more severe clinical outcome in some regions, while in other studied populations they are presented as practically harmless options [7, 12]. Moreover, differences between East Asian and Western strains support the hypothesis that the degree of gastroduodenal pathology depends on the complex relationships between host genetics, environmental factors, and combinations of different *H. pylori* virulence genes [8]. Although the importance of most *H. pylori* virulence genes has not yet been uniformly explained, knowledge of their role in pathogenesis as well as disease outcome has improved significantly over the past two decades. A number of studies have analyzed the relationship of *Helicobacter pylori* genes (*cagA*, *vacAm1*, *vacAm2*, *vacAs1*, *vacAs1a*, *vacAs1b*, *vacAs1c*, *vacAs2*, *babA*, *iceA1*, *iceA2*, *dupA*) with the development of gastritis, gastroduodenal ulcers, and stomach cancer [9].

Purpose of the study. Molecular genetic study of the genotypic features of *Helicobacter pylori* in the formation of NSAID gastropathy in patients with RA in order to prevent gastroduodenal lesions.

Material and methods. 82 patients with rheumatoid arthritis (71 (84%) women and 11 (16%) men) who were inpatient treatment in the rheumatology department of the Tashkent Medical Academy multidisciplinary clinic and who had been using NSAIDs for a long time were examined. The control group consisted of 22 healthy individuals. On the basis of laboratory examinations, the patients were divided into 2 groups, according to the degree of activity of R.A. The material for the study was the genomic DNA of *H. pylori*, isolated from a biopsy specimen of the antrum of the stomach. Molecular genetic studies were carried out at the Republican Scientific and Practical Medical Center of Hematology of the Republic of Uzbekistan. The molecular genetic part of the work included several stages: 1. Selection and optimization of the operation of oligoprimers systems for *H. pylori* virulence genes. 2. Collection of biological material 3. Extraction of DNA from biological material. 4. Carrying out PCR. 5. Conducting electrophoresis and visualizing the results. Mutations were identified by polymerase chain reaction (PCR) using known primer sequences kindly provided by the Center of High Technologies. PCR was performed using kits from Litekh (Russia) and Amplisens (Russia). In all examined individuals, the genotype of *H. pylori* *cagA*, *vacAm1*, *vacAm2*, *vacAs1*, *vacAs2*, *vacAs1b*, *vacAs1c*, *iceA1*, *iceA2* was determined from biopsy samples. The estimation of the distributions deviation of the studied DNA genotypes polymorphisms from the canonical Hardy-Weinberg, distribution was carried out using the computer program for the analysis of genetic data "GenePop" ("Genetics of Population") (<http://wbiomed.curtin.edu.au/genepop>). The software package "OpenEpi 2009, Version 2.9" was used as a calculation tool.

Results and discussion. The human bacterial pathogen *Helicobacter pylori*, the subject of intensive research since its first description in 1984, affects half of the world's population [6]. The first *H. pylori* genome sequence was published in 1997 (Tomb et al. 1997), and it was the first bacterium for which two genome sequences became available in 1999 (Alm et al. 1999). These two strains showed high levels of genomic differences, both at the sequence level and at the predicted gene level. *Helicobacter pylori* lends itself to natural transformation, and mutations, recombination and frequent genetic exchange have led to a high level of genome variability, which can be observed over time even in one patient (Kuipers et al. 2000.) The chromosome contains genes that encode a cluster of urease genes, different cytotoxins and *cag* island of pathogenicity. Toxins include cytotoxin, a stretching cytotoxin, vacuolizing cytotoxin (*VacA*), which induces apoptosis of host epithelial cells (cell death), and a cytotoxin-associated antigen (*CagA*), which leads to altered host cell signaling pathways. The *CagA* protein is translocated into host cells by the type IV secretion system encoded by the *cag* pathogenicity islet [5].

Our studies made it possible to select and optimize the operation of *H. pylori* gene oligoprimer systems. The developed methodology became the basis for genotyping of *H. pylori* genes in RA patients with and without gastropathy, which made it possible to conduct preliminary molecular genetic studies to determine the frequency of occurrence of allelic variants of the above genes among conditionally healthy and sick patients. Optimization of molecular genetic methods for detecting *H. pylori* virulence genes will help increase the efficiency and reduce the cost of the study.

Many studies have assessed the influence of genes of the *H. pylori* microorganism on the development of gastritis, peptic ulcer and stomach cancer, however, the information available in the literature on the role of the *H. pylori* genotype in the development of gastroduodenal diseases is contradictory.

As a result of the molecular genetic study, no statistically significant differences were found between the groups of patients in the degree of activity ($p > 0.05$). But at the same time, in the group of patients with the 2nd degree of RA activity, the spectrum of *H. pylori* genotypes was significantly different, *vacAm2* and *iceA2* were much more common. The *vacA* gene has 2 regions: signal - s (signal) and middle - m (middle). In the signaling s-region of the gene, two allelic variants are distinguished - s1 and s2. The middle m-region also has two allelic types - m1 or m2. The amount of VacA cytotoxin generated depends on the genotype of the strain. *H. pylori* strains *vacAs1m1* produce the greatest amount of VacA cytotoxin and are more often associated with peptic ulcers [5].

Genes *cagA*, *vacAm1*, *vacAs1*, *vacAs1a*, *vacAs1b*, *vacAs1c*, *iceA1* were equally often detected in patients with 1 and 2 degrees of RA activity. In patients who constantly took NSAIDs before therapy with Diclofenac sodium and continued to take them in the future, did not lead to a change in the frequency of the spectrum of *H. pylori* genotypes. The results of molecular genetic studies are presented in table 1.

Table 1
Indicators of molecular genetic study of *H. pylori* virulence genes in patients with RA of I and II degrees of activity

H. pylori genotypes	RA of the 1st degree of activity N= 33		RA of the 1st degree of activity N=49		healthy individuals N=22		Statistics
	N	%	N	%	N	%	
<i>cagA</i>	16	48	21	43	7	31	$\chi^2=0,05$ $p=0.11$
<i>vacAm1</i>	17	50	22	45	5	22	$\chi^2=0,20$ $p=0.712$
<i>vacAm2</i>	14	43	34	70	-	-	$\chi^2=4,12$ $p=0.011$
<i>vacAs1</i>	13	40	17	35	4	18	$\chi^2=0,09$ $p=0.671$
<i>vacAs2</i>	8	25	29	60	-	-	$\chi^2=0,55$ $p=0.550$
<i>vacAs1b</i>	2	6	3	7	1	5	$\chi^2=0,09$ $p=1.09$
<i>iceA1</i>	7	22	11	23	3	14	$\chi^2=0,90$ $p=1.09$
<i>iceA2</i>	10	30	25	52	-	-	$\chi^2=6,71$ $p=0.036$

Thus, according to the data of a molecular genetic study, the pathogenic strain VacA m2, IceA 2 prevails in patients with RA of the 2nd degree of activity.

Conclusion. Our preliminary results suggest that *H. Pylori* genes VacA m2, IceA 2 can be considered as an additional markers of NSAID gastropathy in rheumatoid arthritis.

References

1. Janssen M, Dijkmans BA, Lamers CB. Upper gastrointestinal manifestations in rheumatoid arthritis patients: intrinsic or extrinsic pathogenesis? Scand J Gastroenterol Suppl. 2019;178:79-84. doi: 10.3109/00365529009093155. PMID: 2277973.

2. Kalagova A.V., Aylarova N.R., Panagov Z.G. NSAID gastropathy in patients with rheumatoid arthritis // Вестник науки и образования. 2019. №1-1 (55). Pp. 97-100. URL: <https://cyberleninka.ru/article/n/npvp-gastropatii-u-bolnyh-revmatoidnym-artritom> (дата обращения: 18.01.2021).
3. Savarino V, Mela GS, Zentilin P, Cimmino MA, Parisi M, Mele MR, Pivari M, Bisso G, Celle G. Effect of one-month treatment with nonsteroidal antiinflammatory drugs (NSAIDs) on gastric pH of rheumatoid arthritis patients. *Dig Dis Sci.* 2000 Mar;43(3):459-63. doi: 10.1023/a:1018834301901. PMID: 9539637.
4. Isakov V.A. Molecular genetic basis of pathogenicity of *Helicobacter pylori* // *Ros. zhurn. gastroenterol., hepatol. and coloproctol.* – 2021. – №. 6. – С. 82-86.
5. (<https://www.ncbi.nlm.nih.gov/genome/?term=helicobacter%20pylori>)
6. Mizokami Y, Narushima K, Shiraishi T, Otsubo T, Narasaka T, Matsuoka T. Non-*Helicobacter pylori* ulcer disease in rheumatoid arthritis patients receiving long-term NSAID therapy. *J Gastroenterol.* 2022;35 Suppl 12:38-41. PMID: 10779216.
7. Isaeva G. Sh., Valieva R. I. Biological properties and virulence *Helicobacter pylori* // *Клиническая микробиология и антимикробная химиотерапия.* – 2021. – Т. 20. – №. 1.
8. Faizullina R.A., Abdullina E.V. Factors of pathogenicity and virulence of *Helicobacter pylori* and their role in the development of *Helicobacter*-associated gastroduodenal pathology // *Практическая медицина.* – 2023. – №. 48.
9. Makarenko E.V. Genetic factors of *Helicobacter pylori* pathogenicity // *Иммунопатология, аллергология, инфектология.* – 2019. – №. 3. – С. 78-83.
10. Makarenko E.V., Voropaeva A.V. Genes *vacA*, *cagA* and *babA* *Helicobacter pylori* in patients with duodenal ulcer and chronic gastritis // *Вестник Витебского государственного медицинского университета.* – 2018. – Т. 3. – №. 1.
11. Geographic distribution of *vacA* allelic types of *Helicobacter pylori* / L.J.van Doorn, C.Figueiredo, F.M-graud et al. // *Gastroenterology.* 2021. Vol.116, №4. P.823-830.
12. Khasanova, G. H., Tukhtaeva, N. K., Saidov, V. M., & Zhulkevich, I. V. (2019). Modern approaches to diet therapy in hypertensive disease. *Journal of Scientific Research*, (1), 11-14.
22. Azadayeva, K. E., Tukhtayeva, N. Kh., & Karimov, M. Sh. (2023). Characteristics of the lipid profile of blood in patients with reactive arthritis with impaired gastro-duodenal microbiocenosis and ways to correct it.
23. Tukhtaeva, N. K. (2023). The degree of damage to the gastroduodenal zone in patients with rheumatoid arthritis against the background of basic and anti-inflammatory therapy. *Texas Journal of Medical Science*, 25, 58-62.
24. Tukhtaeva, N. K., & Karimov, M. S. (2023). Features of *helicobacter pylori* genes in NSAID gastropathy in rheumatoid arthritis patients.
25. Nurmetov, H. T., Marufkhanov, H. M., Talipov, R. M., & Tukhtaeva, N. H. (2023). Clinical and epidemiological features of ankylosing spondylitis in a hospital setting.
26. Mavlyanov, I. R., & Mavlyanov, S. I. (2019). Types of the nervous system and its relationship with patients' compliance with the ongoing therapy. In *Safe Sport-2019* (pp. 74-76).
27. Tukhtaeva, N. H., & Khasanova, G. H. (2023). The role of chondroitin sulfate in the treatment of deforming osteoarthritis.
28. Tukhtaeva, N. H., Karimov, M. Sh., & Sibirkina, M. V. (2020). Study of *H. pylori* contamination in patients with RA.
29. Kh, T. N., Sh, K. M., & Kurbanov, A. K. (2021). Assessment of the gastrointestinal tract in patients with rheumatoid arthritis. *European Journal of Pharmaceutical and Medical Research*, 2 (5), 34-37.
30. Nurmetov, H. T., Marufkhanov, H. M., Talipov, R. M., & Tukhtaeva, N. H. (2023). Clinical and epidemiological features of ankylosing spondylitis in institutions.

ANNALS OF CLINICAL DISCIPLINE

АННАЛЫ КЛИНИЧЕСКИХ ДИСЦИПЛИН КЛИНИК ФАНЛАР ЙИЛНОМАСИ

Научно-практический журнал по всем
направлениям медицины
основан в 2024 году

Бухарским государственным
медицинским институтом

Выходит один раз в 3 месяца

Учредитель Бухарский государственный
медицинский институт