

CR
R
JOURNAL
OF CARDIORESPIRATORY RESEARCH

ISSN 2181-0974
DOI 10.26739/2181-0974
Impact Factor SJIF 2022: 5.937

Journal of
CARDIORESPIRATORY
RESEARCH



Volume 6, Issue 2/2

2025

МИНИСТЕРСТВО ЗДРАВООХРАНЕНИЯ
РЕСПУБЛИКИ УЗБЕКИСТАН

Журнал кардиореспираторных исследований

JOURNAL OF CARDIORESPIRATORY RESEARCH

Главный редактор: Э.Н.ТАШКЕНБАЕВА

Учредитель:

Самаркандский государственный
медицинский университет

Tadqiqot.uz

Ежеквартальный
научно-практический
журнал

ISSN: 2181-0974

DOI: 10.26739/2181-0974



**№ 2/2
2025**

Главный редактор:

Ташкенбаева Элеонора Негматовна

доктор медицинских наук, профессор, заведующая кафедрой внутренних болезней и кардиологии №2 Самаркандского Государственного медицинского университета, председатель Ассоциации терапевтов Самаркандской области.
<https://orcid.org/0000-0001-5705-4972>

Заместитель главного редактора:

Хайбулина Зарина Руслановна

доктор медицинских наук, руководитель отдела биохимии с группой микробиологии
ГУ «РСНПМЦХ им. акад. В. Вахидова» <https://orcid.org/0000-0002-9942-2910>

ЧЛЕНЫ РЕДАКЦИОННОЙ КОЛЛЕГИИ:

Аляви Анис Лютфуллаевич

академик АН РУз, доктор медицинских наук, профессор, Председатель Ассоциации Терапевтов Узбекистана, Советник директора Республиканского специализированного научно-практического центра терапии и медицинской реабилитации (Ташкент)
<https://orcid.org/0000-0002-0933-4993>

Бокерия Лео Антонович

академик РАН, доктор медицинских наук, профессор, Президент научного центра сердечно-сосудистой хирургии им. А.Н. Бакулева (Москва), <https://orcid.org/0000-0002-6180-2619>

Курбанов Равшанбек Давлетович

академик АН РУз, доктор медицинских наук, профессор, Советник директора Республиканского специализированного научно-практического медицинского центра кардиологии (Ташкент), <https://orcid.org/0000-0001-7309-2071>

Шкляев Алексей Евгеньевич

д.м.н., профессор, ректор Федерального государственного бюджетного образовательного учреждения высшего образования «Ижевская государственная медицинская академия» Министерства здравоохранения Российской Федерации

Michał Tendera

профессор кафедры кардиологии Верхнесилезского кардиологического центра, Силезский медицинский университет в Катовице, Польша (Польша)
<https://orcid.org/0000-0002-0812-6113>

Покушалов Евгений Анатольевич

доктор медицинских наук, профессор, заместитель генерального директора по науке и развитию сети клиник «Центр новых медицинских технологий» (ЦНМТ), (Новосибирск), <https://orcid.org/0000-0002-2560-5167>

Зуфаров Миржамол Мирумарович

доктор медицинских наук, профессор, руководитель отдела ГУ «РСНПМЦХ им. акад. В. Вахидова»
<https://orcid.org/0000-0003-4822-3193>

Акилов Хабибулла Атауллаевич

доктор медицинских наук, профессор, Директор Центра развития профессиональной квалификации медицинских работников (Ташкент)

Насирова Зарина Акбаровна

DSc, доцент кафедры внутренних болезней и кардиологии №2 Самаркандского Государственного Медицинского университета (ответственный секретарь) ORCID: 0000-0002-8722-0393 (ответственный секретарь)

Ризаев Жасур Алимджанович

доктор медицинских наук, профессор, Ректор Самаркандского государственного медицинского университета, <https://orcid.org/0000-0001-5468-9403>

Зиядуллаев Шухрат Худойбердиевич

доктор медицинских наук, профессор, заместитель директора по научной работе института иммунологии и геномики человека АН РУз
<https://orcid.org/0000-0002-9309-3933>

Джан Ковак

Профессор, председатель Совета Европейского общества кардиологов по инсульту, руководитель специализированной кардиологии, заведующий отделением кардиологии, кардио- и торакальной хирургии, консультант-кардиолог, больница Гленфилд, Лестер (Великобритания)

Сергио Бернардини

Профессор клинической биохимии и клинической молекулярной биологии, главный врач отдела лабораторной медицины, больница Университета Тор Вергата (Рим, Италия)

Ливерко Ирина Владимировна

доктор медицинских наук, профессор, заместитель директора по науке Республиканского специализированного научно-практического медицинского центра фтизиатрии и пульмонологии Республики Узбекистан (Ташкент)
<https://orcid.org/0000-0003-0059-9183>

Цурко Владимир Викторович

доктор медицинских наук, профессор Первого Московского государственного медицинского университета им. И.М. Сеченова (Москва)
<https://orcid.org/0000-0001-8040-3704>

Тригулова Раиса Хусановна

Доктор медицинских наук, руководитель лаборатории превентивной кардиологии, ведущий научный сотрудник лаборатории ИБС и атеросклероза. Республиканский специализированный научно-практический медицинский центр кардиологии (Ташкент)
ORCID- 0000-0003-4339-0670

Тураев Феруз Фатхуллаевич

доктор медицинских наук, Директор Республиканского специализированного научно-практического медицинского центра эндокринологии имени академика Ю.Г. Туракулова

Bosh muharrir:

Tashkenbayeva Eleonora Negmatovna

tibbiyot fanlari doktori, professor, Samarqand davlat tibbiyot universiteti 2-sonli ichki kasalliklar va kardiologiya kafedrasini mudiri, Samarqand viloyati vrachlar uyushmasi raisi
<https://orcid.org/0000-0001-5705-4972>

Bosh muharrir o'rinbosari:

Xaibulina Zarina Ruslanovna

tibbiyot fanlari doktori, "akad V. Vohidov nomidagi RIJM davlat institutining mikrobiologiya guruhi bilan biokimyo kafedrasini mudiri" <https://orcid.org/0000-0002-9942-2910>

TAHRIRIYAT A'ZOLARI:

Alyavi Anis Lyutfullayevich

O'zbekiston Respublikasi Fanlar akademiyasining akademigi, tibbiyot fanlari doktori, professor, O'zbekiston Terapevtlar uyushmasi raisi, Respublika ixtisoslashtirilgan ilmiy va amaliy tibbiy terapiya markazi va tibbiy reabilitatsiya direktori maslahatchisi (Toshkent), <https://orcid.org/0000-0002-0933-4993>

Bockeria Leo Antonovich

Rossiya fanlar akademiyasining akademigi, tibbiyot fanlari doktori, professor, A.N. Bakuleva nomidagi yurak-qon tomir jarrohligi ilmiy markazi prezidenti (Moskva)
<https://orcid.org/0000-0002-6180-2619>

Kurbanov Ravshanbek Davlatovich

O'zbekiston Respublikasi Fanlar akademiyasining akademigi, tibbiyot fanlari doktori, professor, Respublika ixtisoslashtirilgan kardiologiya ilmiy-amaliy tibbiyot markazining direktori maslahatchisi (Toshkent)
<https://orcid.org/0000-0001-7309-2071>

Shklyayev Aleksey Evgenievich

Tibbiyot fanlari doktori, professor, Rossiya Federatsiyasi Sog'liqni saqlash vazirligining "Izhevsk davlat tibbiyot akademiyasi" Federal davlat byudjeti oliy ta'lim muassasasi rektori

Mixal Tendera

Katovitsadagi Sileziya Tibbiyot Universiteti, Yuqori Sileziya Kardiologiya Markazi kardiologiya kafedrasini professori (Polsha)
<https://orcid.org/0000-0002-0812-6113>

Pokushalov Evgeniy Anatolevich

tibbiyot fanlari doktori, professor, "Yangi tibbiy texnologiyalar markazi" (YTTM) klinik tarmog'ining ilmiy ishlar va rivojlanish bo'yicha bosh direktorining o'rinbosari (Novosibirsk) <https://orcid.org/0000-0002-2560-5167>

Zufarov Mirjamol Mirumarovich

tibbiyot fanlari doktori, professor, "akad V. Vohidov nomidagi RIJM davlat muassasasi" bo'limi boshlig'i"
<https://orcid.org/0000-0003-4822-3193>

Akilov Xabibulla Ataulayevich

tibbiyot fanlari doktori, professor, Tibbiyot xodimlarining kasbiy malakasini oshirish markazi direktori (Toshkent)

Nasirova Zarina Akbarovna

Samarqand davlat tibbiyot universiteti 2-sonli ichki kasalliklar va kardiologiya kafedrasini dotsenti, DSc (mas'ul kotib) ORCID: 0000-0002-8722-0393 (mas'ul kotib)

Rizayev Jasur Alimjanovich

tibbiyot fanlari doktori, professor, Samarqand davlat tibbiyot universiteti rektori
<https://orcid.org/0000-0001-5468-9403>

Ziyadullayev Shuxrat Xudoyberdiyevich

tibbiyot fanlari doktori, professor, O'zbekiston Respublikasi Fanlar akademiyasi Immunologiya va inson genomikasi instituti ilmiy ishlar bo'yicha direktor o'rinbosari (Toshkent) <https://orcid.org/0000-0002-9309-3933>

Jan Kovak

Yevropa kardiologiya jamiyati insult kengashi raisi, 2017 yildan buyon ixtisoslashtirilgan kardiologiya kafedrasini rahbari, kardiologiya, yurak va torakal jarrohlik kafedrasini mudiri, maslahatchi kardiolog Glenfild kasalxonasi, Lester (Buyuk Britaniya)

Sergio Bernardini

Klinik biokimyo va klinik molekulyar biologiya bo'yicha professor - Laboratoriya tibbiyoti bo'limi bosh shifokori – Tor Vergata universiteti kasalxonasi (Rim-Italiya)

Liverko Irina Vladimirovna

tibbiyot fanlari doktori, professor, Respublika ixtisoslashtirilgan fiziologiya va pulmonologiya ilmiy-amaliy tibbiyot markazining ilmiy ishlar bo'yicha direktor o'rinbosari (Toshkent)
<https://orcid.org/0000-0003-0059-9183>

Surko Vladimir Viktorovich

tibbiyot fanlari doktori, professori I.M. Sechenov nomidagi Birinchi Moskva Davlat tibbiyot universiteti (Moskva)
<https://orcid.org/0000-0001-8040-3704>

Trigulova Raisa Xusainovna

Tibbiyot fanlari doktori, Profilaktik kardiologiya laboratoriyasi mudiri, YuIK va ateroskleroz laboratoriyasining yetakchi ilmiy xodimi. Respublika ixtisoslashtirilgan kardiologiya ilmiy-amaliy tibbiyot markazi (Toshkent) ORCID- 0000-0003-4339-0670

Turayev Feruz Fatxullayevich

tibbiyot fanlari doktori, akademik Y.X.To'raqulov nomidagi Respublika ixtisoslashtirilgan endokrinologiya ilmiy amaliy tibbiyot markazi direktori
<https://orcid.org/0000-0002-1321-4732>

Chief Editor:

Tashkenbaeva Eleonora Negmatovna

Doctor of Medical Sciences, professor, Head of the Department of Internal Diseases and cardiology No. 2 of the Samarkand State Medical University, Chairman of the Association of Physicians of the Samarkand Region. <https://orcid.org/0000-0001-5705-4972>

Deputy Chief Editor:

Xaibulina Zarina Ruslanovna

Doctor of Medical Sciences, Head of the Department of Biochemistry with the Microbiology Group of the State Institution "RSSC named after acad. V. Vakhidov", <https://orcid.org/0000-0002-9942-2910>

MEMBERS OF THE EDITORIAL BOARD:

Alyavi Anis Lutfullaevich

Academician of the Academy of Sciences of the Republic of Uzbekistan, Doctor of Medical Sciences, Professor, Chairman of the Association of Physicians of Uzbekistan, Advisor to the Director of the Republican Specialized Scientific - Practical Center of Therapy and Medical Rehabilitation (Tashkent) <https://orcid.org/0000-0002-0933-4993>

Bockeria Leo Antonovich

Academician of the Russian Academy of Sciences, Doctor of Medical Sciences, Professor, President of the Scientific Center for Cardiovascular Surgery named after A.N. Bakuleva (Moscow) <https://orcid.org/0000-0002-6180-2619>

Kurbanov Ravshanbek Davletovich

Academician of the Academy of Sciences of the Republic of Uzbekistan, Doctor of Medical Sciences, Professor, Advisor to the Director Republican Specialized Scientific and Practical Medical Center of Cardiology, (Tashkent) <https://orcid.org/0000-0001-7309-2071>

Shklyayev Aleksey Evgenievich

Doctor of Medical Sciences, Professor, Rector of the Federal State Budgetary Educational Institution of Higher Education "Izhevsk State Medical Academy" of the Ministry of Health of the Russian Federation

Michal Tendera

Professor of the Department of Cardiology, Upper Silesian Cardiology Center, Silesian Medical University in Katowice, Poland (Poland) <https://orcid.org/0000-0002-0812-6113>

Pokushalov Evgeny Anatolyevich

Doctor of Medical Sciences, Professor, Deputy Director General for Science and Development of the Clinic Network "Center for New Medical Technologies" (CNMT), (Novosibirsk) <https://orcid.org/0000-0002-2560-5167>

Akilov Xabibulla Ataulaevich

Doctor of Medical Sciences, Professor, Center for the development of professional qualifications of medical workers (Tashkent)

Nasyrova Zarina Akbarovna

DSc, Associate Professor of the Department of Internal Diseases and cardiology No. 2 of the Samarkand State Medical University (Executive Secretary) ORCID: 0000-0002-8722-0393 (Executive Secretary)

Rizaev Jasur Alimjanovich

Doctor of Medical Sciences, Professor, Rector of the Samarkand State Medical University <https://orcid.org/0000-0001-5468-9403>

Ziyadullaev Shuhrat Khudoyberdievich

Doctor of Medical Sciences, Professor, Deputy Director for Scientific Work of the Institute of Human Genomics Immunology of the Academy of Sciences of the Republic of Uzbekistan. <https://orcid.org/0000-0002-9309-3933>

Jan Kovac

Professor Chairman, European Society of Cardiology Council for Stroke, Lead of Specialised Cardiology, Head of Cardiology, Cardiac and Thoracic Surgery, Consultant Cardiologist, Glenfield Hospital, Leicester (United Kingdom)

Sergio Bernardini

Full Professor in Clinical Biochemistry and Clinical Molecular Biology -Head Physician of the Laboratory Medicine Unit- University of Tor Vergata Hospital (Rome-Italy)

Liverko Irina Vladimirovna

Doctor of Medical Sciences, Professor, Deputy Director for Science of the Republican Specialized Scientific and Practical Medical Center for Phthiology and Pulmonology of the Republic of Uzbekistan (Tashkent) <https://orcid.org/0000-0003-0059-9183>

Zufarov Mirjamol Mirumarovich

Doctor of Medical Sciences, Professor, Head of the Department of the State Institution "RSNPMTSH named after acad. V. Vakhidov" <https://orcid.org/0000-0003-4822-3193>

Tsurko Vladimir Viktorovich

Doctor of Medical Sciences, professor Of Moscow State Medical University by name I.M. Sechenov (Moscow) <https://orcid.org/0000-0001-8040-3704>

Trigulova Raisa Khusainovna

Doctor of Medical Sciences, Head of the Laboratory of Preventive Cardiology, Leading Researcher of the Laboratory of IHD and Atherosclerosis. Republican Specialized Scientific and Practical Medical Center of Cardiology (Tashkent) ORCID- 0000-0003-4339-0670

Turaev Feruz Fatxullaevich

Doctor of Medical Sciences, Director of the Republican Specialized Scientific and Practical Medical Center of Endocrinology named after Academician Yu.G. Turakulova

Алимов Дониёр Анварович
доктор медицинских наук, директор
Республиканского научного центра
экстренной медицинской помощи

Янгиев Бахтиёр Ахмедович
кандидат медицинских наук,
директор Самаркандского филиала
Республиканского научного центра
экстренной медицинской помощи

Абдуллаев Акбар Хатамович
доктор медицинских наук, главный
научный сотрудник Республиканского
специализированного научно-
практического центра медицинской
терапии и реабилитации
<https://orcid.org/0000-0002-1766-4458>

Агабабян Ирина Рубеновна
кандидат медицинских наук, доцент,
заведующая кафедрой терапии ФПДО,
Самаркандского Государственного
медицинского института

Алиева Нигора Рустамовна
доктор медицинских наук, заведующая
кафедрой Госпитальной педиатрии №1
с основами нетрадиционной медицины
ТашПМИ

Исмаилова Адолат Абдурахимовна
доктор медицинских наук, профессор,
заведующая лабораторией
фундаментальной иммунологии
Института иммунологии геномики
человека АН РУз

Камалов Зайнитдин Сайфутдинович
доктор медицинских наук, профессор,
заведующий лабораторией
иммунорегуляции Института
иммунологии и геномики
человека АН РУз

Каюмов Улугбек Каримович
доктор медицинских наук, профессор,
заведующий кафедрой внутренних
болезней и телемедицины Центра
развития профессиональной
квалификации медицинских работников

Хусинова Шоира Акбаровна
кандидат философских наук, доцент,
заведующая кафедрой общей практики,
семейной медицины ФПДО
Самаркандского Государственного
медицинского института

Шодикүлова Гуландом Зикрияевна
д.м.н., профессор, заведующая
кафедрой внутренних болезней № 3
Самаркандского Государственного
Медицинского Института
(Самарканд)
<https://orcid.org/0000-0003-2679-1296>

Alimov Doniyor Anvarovich
*tibbiyot fanlari doktori, Respublika
shoshilinch tibbiy yordam ilmiy
markazi direktori (Toshkent)*

Yangiyev Baxtiyor Axmedovich
*tibbiyot fanlari nomzodi,
Respublika shoshilinch tibbiy
yordam ilmiy markazining
Samarqand filiali direktori*

Abdullayev Akbar Xatamovich
*tibbiyot fanlari doktori, O'zbekiston
Respublikasi Sog'liqni saqlash
vazirligining "Respublika
ixtisoslashtirilgan terapiya va tibbiy
reabilitatsiya ilmiy-amaliy
tibbiyot markazi" davlat
muassasasi bosh ilmiy xodimi
<https://orcid.org/0000-0002-1766-4458>*

Agababayan Irina Rubenovna
*tibbiyot fanlari nomzodi, dotsent,
DKTF, terapiya kafedrasini mudiri,
Samarqand davlat tibbiyot instituti*

Alieva Nigora Rustamovna
*tibbiyot fanlari doktori, 1-sonli
gospital pediatriya kafedrasini mudiri,
ToshPTI*

Ismoilova Adolat Abduraximovna
*tibbiyot fanlari doktori, professor,
O'zbekiston Respublikasi Fanlar
akademiyasining Odam genomikasi
immunologiyasi institutining
fundamental immunologiya
laboratoriyasining mudiri*

Kamalov Zaynitdin Sayfutdinovich
*tibbiyot fanlari doktori, professor,
O'zbekiston Respublikasi Fanlar
akademiyasining Immunologiya va
inson genomikasi institutining
Immunogenetika laboratoriyasi mudiri*

Qayumov Ulug'bek Karimovich
*tibbiyot fanlari doktori, professor,
Tibbiyot xodimlarining kasbiy
malakasini oshirish markazi, ichki
kasalliklar va teletibbiyot kafedrasini
mudiri (Toshkent)*

Xusinova Shoira Akbarovna
*tibbiyot fanlari nomzodi, dotsent,
Samarqand davlat tibbiyot instituti
DKTF Umumiy amaliyot va oilaviy
tibbiyot kafedrasini mudiri (Samarqand)*

Shodikulova Gulandom Zikriyayevna
*tibbiyot fanlari doktori, professor,
Samarqand davlat tibbiyot instituti 3-
ichki kasalliklar kafedrasini mudiri
(Samarqand)
<https://orcid.org/0000-0003-2679-1296>*

Alimov Doniyor Anvarovich
*Doctor of Medical Sciences, Director of
the Republican Scientific Center of
Emergency Medical Care*

Yangiev Bakhtiyor Axmedovich
*PhD, Director of Samarkand branch of
the Republican Scientific Center of
Emergency Medical Care*

Abdullaev Akbar Xatamovich
*Doctor of Medical Sciences,
Chief Researcher of the State Institution
"Republican Specialized Scientific and
Practical Medical Center for Therapy and
Medical Rehabilitation" of the Ministry of
Health of the Republic of Uzbekistan,
<https://orcid.org/0000-0002-1766-4458>*

Agababayan Irina Rubenovna
*PhD, Associate Professor, Head of the
Department of Therapy, FAGE,
Samarkand State Medical Institute*

Alieva Nigora Rustamovna
*Doctor of Medical Sciences, Head of the
Department of Hospital Pediatrics
No. 1 with the basics of alternative
medicine, TashPMI*

Ismailova Adolat Abduraximovna
*doctor of Medical Sciences, Professor,
Head of the Laboratory of Fundamental
Immunology of the Institute of
Immunology of Human
Genomics of the Academy of Sciences
of the Republic of Uzbekistan*

Kamalov Zainitdin Sayfutdinovich
*doctor of Medical Sciences, Professor,
Head of the Laboratory of
Immunogenetics of the Institute of
Immunology and Human Genomics
of the Academy of Sciences of the
Republic of Uzbekistan*

Kayumov Ulugbek Karimovich
*Doctor of Medical Sciences, Professor,
Head of the Department of Internal
Diseases and Telemedicine of the Center
for the development of professional
qualifications
of medical workers*

Khusinova Shoira Akbarovna
*PhD, Associate Professor, Head of the
Department of General Practice,
Family Medicine FAGE of the
Samarkand State Medical Institute*

Shodikulova Gulandom Zikriyayevna
*Doctor of Medical Sciences, professor,
head of the Department of Internal
Diseases N 3 of Samarkand state medical
institute (Samarkand)
<https://orcid.org/0000-0003-2679-1296>*

Халиков Каххор Мирзаевич
кандидат медицинских наук, доцент
заведующий кафедрой биологической
химии Самаркандского
государственного медицинского
университета

Аннаев Музаффар
Ассистент кафедры внутренних
болезней и кардиологии №2
Самаркандского государственного
медицинского университета
(технический секретарь)

Тулабаева Гавхар Миракбаровна
Заведующая кафедрой кардиологии,
Центр развития профессиональной
квалификации медицинских
работников, д.м.н., профессор

**Абдумаджидов Хамидулла
Амануллаевич**
Бухарский государственный
медицинский институт имени Абу
Али ибн Сино. Кафедра «Хирургические
болезни и реанимация». Доктор
медицинских наук, профессор.

Саидов Максуд Арифович
к.м.н., директор Самаркандского
областного отделения
Республиканского специализированного
научно-практического медицинского
центра кардиологии (г. Самарканд)

Срождинова Нигора Зайнутдиновна
д.м.н. Заведующая научно-
исследовательской лабораторией
кардиодиабета и метаболических
нарушений РСНПМЦК

Xalikov Qaxxor Mirzayevich
Tibbiyot fanlari nomzodi, dotsent
Samarqand davlat tibbiyot universiteti
Biologik kimyo kafedrasini mudiri

Annayev Muzaffar G'iyos o'g'li
Samarqand davlat tibbiyot universiteti 2-son
ichki kasalliklar va kardiologiya kafedrasini
assistenti (texnik kotib)

Tulabayeva Gavxar Mirakbarovna
kardiologiya kafedrasini mudiri, tibbiyot
xodimlarining kasbiy malakasini rivojlantirish
markazi, tibbiyot fanlari doktori, professor

Abdumadjidov Xamidulla Amanullayevich
«Abu Ali ibn Sino nomidagi Buxoro davlat
tibbiyot oliygohi» Xirurgiya kasalliklari va
reanimatsiya kafedrasini proffessori, tibbiyot
fanlari doktori.

Saidov Maqsud Arifovich
tibbiyot fanlari nomzodi,
Respublika ixtisoslashgan kardialogiya
ilmiy amaliy tibbiyot markazi Samarqand
viloyat mintaqaviy filiali direktori
(Samarqand)

Srojidinova Nigora Zaynutdinovna
t.f.d. Kardiodiabet va metabolik buzilishlar
ilmiy tadqiqot laboratoriyasi mudiri

Khalikov Kakhor Mirzayevich
Candidate of Medical Sciences,
Associate Professor, Head of the Department
of Biological Chemistry, Samarkand State
Medical University

Annaev Muzaffar
Assistant of the Department of Internal
Diseases and Cardiology No. 2 of the
Samarkand State Medical University
(technical secretary)

Tulabayeva Gavkhar Mirakbarovna
Head of the Department of Cardiology,
Development Center professional
qualification of medical workers,
MD, professor

**Abdumadjidov Khamidulla
Amanullayevich**
“Bukhara state medical institute named
after Abu Ali ibn Sino”. DSc, professor.

Saidov Maksud Arifovich
Candidate of Medical Sciences, Director
of the Samarkand Regional Department of
the Republican Specialized Scientific and
Practical Medical Center of Cardiology
(Samarkand)

Srojidinova Nigora Zaynutdinovna
DSc, Head of Cardiodiabetes and Metabolic
Disorders Laboratory

ГЕМАТОЛОГИЧЕСКИЕ ЗАБОЛЕВАНИЯ, ЗАБОЛЕВАНИЯ ПОЧЕК, ЗАБОЛЕВАНИЯ ЖЕЛУДОЧНО-КИШЕЧНОГО ТРАКТА И ПЕЧЕНИ

1	Л.С.Махмонов, Д.А.Амерова, Ф.Х.Маматкулова, Н.Н.Темиров, К.Э. Шомуродов, З.З.Муйиддинов Аутологическая трансплантация гемопоэтических стволовых клеток с использованием гранулоцитарного колониестимулирующего фактора при миеломе и в посттрансплантационный период L.S. Makhmonov, D.A. Amerova, F.Kh. Mamatkulova, N.N. Temirov, K.E. Shomurodov, Z.Z. Muyiddinov Autologous transplantation of hematopoietic stem cells using granulocyte colony-stimulating factor in myeloma and the post-transplant period L.S.Maxmonov, D.A.Amerova, F.X.Mamatkulova, N.N.Temirov, Q.E. Shomurodov, Z.Z.Muyiddinov Miyeloma kasalligida granulotsitik koloniyani stimullovi omil yordamida autologik gematopoetik ildiz hujayralari transplantatsiyasi va transplantatsiyadan keyingi davr.....	11
2	Л.С. Махманов, Ф.Х. Маматкулова, И.К. Умаров, И.Н. Отамуродов, Д.М. Абдуллаев Состояние свертывающей системы крови при лапароскопической аппендэктомии у беременных L.S. Makhmanov, F.Kh. Mamatkulova, I.K. Umarov, I.N. Otamurodov, D.M. Abdullaev The state of the blood coagulation system during laparoscopic appendectomy in pregnant women L. S.Maxmonov, F. X. Mamatkulova, I.K. Umarov, I.N. O'tamurodov, D.M. Abdullayev Homilador ayollarda laparoskopik appendektomiya paytida qon ivish tizimining holati.....	17
3	Л.С. Махмонов, Ф.Х. Маматкулова, К. Т. Турдиев, А.Б.Элмирзаев., Ч.А. Абдусайтова Патология костной системы у больных, находящихся на гемодиализе, в терминальной стадии хронической болезни почек при вторичном гиперпаратиреозе L.S.Maxmonov, F.X. Mamatkulova, Q. T. Turdiyev, Z. S.Haqberdiyev Ch. A.Abdusaitova Ikkilamchi giperparatireozda surunkali buyrak kasalliklari terminal bosqichida gemodializda bo'lgan bemorlarda suyak tizimi patologiyasi L.S. Makhmanov, F.Kh. Mamatkulova, Q. T. Turdiyev, Z. S. Hakberdiyev, Ch. A. Abdusaitova Pathology of the skeletal system in patients on hemodialysis in end-stage chronic kidney disease with secondary hyperparathyroidism.....	22
4	Ф.Х.Маматкулова, Л.С.Махмонов, Ш.М.Азизова, М.С. Ярматова, М.М.Хорозов Особенности патогенеза анемического синдрома при системной красной волчанке F.Kh. Mamatkulova, L.S. Makhmanov, Sh.M. Azizova, M.S. Yarmatova, M.M. Khorozov Features of the pathogenesis of anemic syndrome in systemic lupus erythematosus F.X.Mamatkulova, L.S.Maxmonov, Sh.M.Azizova, M.S. Yarmatova, M.M.Xo'rozov Tizimli qizil yugurik kasalligida anemik sindrom patogenezi xususiyatlari.....	28
5	Ф.Х.Маматкулова Л.С.Махмонов., О.И.Алмаматов, А.У. Файзиев, Б.М. Абдураимов, Р.Г. Норбеков Анемия у больных с поражением почек при системных заболеваниях и особенности лечения F.Kh.Mamatkulova L.S.Makhmonov., O.I.Almamatov, A.U. Fayziyev, B. M.Abduraimov, R. G'Norbekov Anemia in patients with kidney damage in systemic diseases and treatment features F.X.Mamatkulova L.S.Maxmonov., O.I.Almamatov, A.U. Fayziyev, B. M.Abduraimov, R. G'Norbekov Tizimli kasalliklarda buyrak zararlanishi bilan bemorlarda kamqonlik kechishi va davolash xususiyatlari.....	33
6	Ф.Х. Маматкулова, Б.О. Холматов, Х.Т. Рахматов, Р.А. Абдураззоков Причины анемии при урологических заболеваниях F.H. Mamatkulova, B.O. Kholmatov, Kh.T. Rakhmatov, R.A. Abdurazzokov Causes of anemia in urological diseases F.X. Mamatkulova, B. O' Xolmatov, X. T. Raxmatov, R. A.Abdurazzoqov Urologik kasalliklarda anemiyaga olib keluvchi sabablar.....	38
7	Е.Т. Отумбаева, Г.Н. Досыбаева, Б.А. Куанышева, Ш.А.Хусинова Распространенность фиброзных изменений печени у взрослых E.T. Otumbayeva, G.N. Dosybayeva, B.A. Kuanysheva, Sh.A. Khusinova Presence of fibrous changes in the liver in adults Ye.T. Otumbayeva, G.N. Dosibayeva, B.A. Kuanisheva, Sh.A.Xusinova Kattalarda jigarning fibroz o'zgarishlarining tarqalishi.....	43

8	Э.Н.Ташкенбаева, М.О.Эсанкулов Ассоциация полиморфизма генов SOD2 и UMOD с прогрессированием хронической болезни почек E.N. Tashkenbaeva, M.O. Esankulov Association of SOD2 and UMOD gene polymorphisms with chronic kidney disease progression E.N.Tashkenbayeva, M.O.Esanqulov SOD2 va UMOD genlar polimorfizmining surunkali buyrak kasalligi rivojlanishi bilan bog'liqligi.....	49
9	Х.Х.Хамраев, И.И. Султонов, Б.Э Хамраев., Д.Й. Нормуродов Биомаркеры раннего повреждения почек: современные лабораторные подходы Kh.Kh.Khamraev, I. I. Sultonov, B.E. Khamraev, J. Yu. Normurodov Biomarkers of early kidney injury: modern laboratory approaches X.X.Xamrayev, I. I.Sultonov, B.E.Xamrayev, J. Y.Normurodov Buyraklarning erta jarohatlanish biomarkerlari: zamonaviy laborator yondashuvlar.....	57
10	Х.Х.Хамраев, И.И.Султонов, А.А.Хусинов, А.И.Нормуродов Диагностическое значение биомаркеров микроРНК при повреждении почек Kh.Kh.Khamraev, I.I.Sultonov, A.A.Husinov, A.I.Normuradov Diagnostic significance of microrna biomarkers in kidney injury X.X.Xamrayev, I.I.Sultonov, A.A.Husinov, A.I.Normuradov MikroRNK biomarkerining buyrak shikastlanishidagi diagnostik ahamiyati.....	61
11	Хуррамов Б.Ш., Маматкулова Ф.Х., Давронов Т.С., Ахмедов С.Б., Есергапов Б.А. Развитие В12-дефицитной миелополнейропатии у молодых вследствие хронической интоксикации закисью азота Khurramov B.Sh., Mamatkulova F.Kh., Davronov T.S., Akhmedov S.B., Esergapov B.A. Development of B12-deficiency myelopolyneuropathy in young people due to chronic nitrous oxide intoxication Xurramov B. Sh., Mamatkulova F.X., Davronov T. S., Axmedov S. B., Esergapov B. A. Yoshlarda azot oksidi bilan surunkali intoksikatsiyasi natijasida B12 tanqisligi miyelopolineyropatiyasining kelib chiqishi	65

РЕВМАТОЛОГИЧЕСКИЕ И ИММУНООПОСРЕДОВАННЫЕ ЗАБОЛЕВАНИЯ

12	Г.А. Ахмедова, Ф.Ш. Хасанов, С.Е. Эшмуратов, Р.Ш. Уралов. Хамраев Х.Х. Хроническая болезнь почек у пациентов с ревматоидным артритом G.A. Akhmedova, F.Sh. Khasanov, S.E. Eshmuratov, R.Sh. Uralov. Khamraev Kh.Kh. Chronic kidney disease in patients with rheumatoid arthritis G.A. Axmedova, F.Sh. Xasanov, S.E. Eshmuratov, R.Sh. Uralov, Xamrayev X.X. Revmatoid artrit bilan og'rigan bemorlarda surunkali buyrak kasalligi.....	72
13	З.Б. Бабамуродова Иммунологические аспекты ревматологических заболеваний и подходы к их терапии Z.B.Babamuradova Immunological aspects of rheumatologic diseases and approaches to their therapy Z.B. Babamuradova Revmatologik kasalliklarning immunologik jihatlar va ularni davolash yondashuvlari.....	77
14	Ж.Ж.Вохидов, Г.З.Шодиккулова Псориазический артрит: современный взгляд на проблему и пути ее решения J.J.Vokhidov, G.Z.Shodikulova Psoriatic arthritis: a modern view of the problem and ways to solving it J.J.Voxidov, G.Z.Shodikulova Psoritik artrit: muammo va unilarni hal qilish yo'llariga zamonaviy qarashlar.....	84
15	Ж.И. Гуломов, Г.З. Шодиккулова, З.К. Таирова Оценка эффективности лечения сердечных аритмий на фоне недифференцированной дисплазии соединительной ткани на основе эхокардиографических показателей J.I. G'ulomov, G.Z. Shodikulova, Z.K. Tairova Бириктирувчи тўкима дифференциаллашмаган дисплазияси фонида ривожланган юрак аритмияларини даволаш самарадорлигини эхокардиографик кўрсаткичлар асосида баҳолаш J.I. Gulomov, G.Z. Shodikulova, Z.K. Tairova Evaluation of the effectiveness of treatment of cardiac arrhythmias against the background of undifferentiated connective tissue dysplasia according to echocardiographic indicators.....	90
16	У.С. Пулатов, Г.З. Шодиккулова, А.Х. Каримов Факторы риска и клинические особенности развития подагры U.S. Pulatov, G.Z. Shodikulova, A.Kh. Karimov Risk factors and clinical features of gout development U.S. Pulatov, G.Z. Shodikulova, A.X. Karimov	95

	Podagra rivojlanishining xavf omillari va klinik xususiyatlari.....	
17	О.Г.Хасанов, Г.З. Шодикүлова Клинико-иммунологические и генетические особенности развития остеоартроза тазобедренных суставов у лиц узбекской популяции, перенесших Covid-19 O.G.Khasanov, G.Z. Shodikulova Clinical-immunological and genetic features of the development of hip joint osteoarthritis in individuals of the Uzbek population who have undergone Covid-19 O.G.Xasanov, G.Z. Shodikulova Covid-19 o'tkazgan o'zbek populyatsiyasidagi shaxslarda chanoq-son bo'g'imlari osteartrozi rivojlanishining klinik-immunologik va genetik xususiyatlari.....	103

ISSN: 2181-0974
www.tadqiqot.uz**Бабамурадова Заррина Бахтияровна**DSc, доцент, заведующая кафедрой Внутренних болезней
Педиатрического факультетаСамаркандский Государственный медицинский университет
Самарканд, Узбекистан**ИММУНОЛОГИЧЕСКИЕ АСПЕКТЫ РЕВМАТОЛОГИЧЕСКИХ ЗАБОЛЕВАНИЙ И ПОДХОДЫ К ИХ ТЕРАПИИ****For citation:** Z.B. Babamuradova IMMUNOLOGICAL ASPECTS OF RHEUMATOLOGIC DISEASES AND APPROACHES TO THEIR THERAPY. Journal of cardiorespiratory research. 2025, vol.6, issue 2.2, pp.77-83<http://dx.doi.org/10.26739/2181-0974/2025/6/2/2/13>**АННОТАЦИЯ**

На сегодняшний день, по данным организации здравоохранения, ревматологические заболевания являются одной из ведущих причин инвалидности во всем мире. Роль полиморфных генов системы аутоиммунных состояний (IL17A, IL17F, IL23R) и цитокиновой системы (TNF α , IL 1 β , IL4, IL6, IL10) в дифференциальном клиническом течении и тяжести заболевания РЗ и корреляция полиморфных генов цитокинов IL1 β , IL6, IL17A, TNF α с клиническими симптомами не изучена. Цель исследования заключается в изучении особенностей иммунологического статуса и разработке дифференцированных подходов лечению ревматологических заболеваний. Всего обследовано 379 пациентов с РЗ которые были разделены на несколько подгрупп и 98 практически здоровые люди, добровольно согласившиеся на исследование. По результатам было выявлено, что после применения левилимаба отмечались снижение уровня провоспалительных цитокинов на 1,4 раза, в отличие от применения метотрексата. Таким образом, гомозиготное состояние аллели G в фенотипе больного РА, обеспечивая высокий уровень продукции IL-17A, способствует хорошей эффективности терапии ГИБП.

Ключевые слова: ревматологические заболевания, ревматоидный артрит, системная красная волчанка, анкилозирующий спондилит, цитокины, аутоиммунное воспаление, генно-инженерные биологические препараты.

Babamuradova Zarrina BakhtiyarovnaDSc, associated professor, head of department of Internal diseases of Pediatric faculty
Samarkand State Medical University Samarkand, Uzbekistan**IMMUNOLOGICAL ASPECTS OF RHEUMATOLOGIC DISEASES AND APPROACHES TO THEIR THERAPY****ANNOTATION**

As of today, according to the health organization, rheumatological diseases are one of the leading causes of disability worldwide. The role of polymorphic genes in the autoimmune system (IL17A, IL17F, IL23R) and the cytokine system (TNF α , IL 1 β , IL4, IL6, IL10) in the differential clinical course and severity of RD, as well as the correlation of polymorphic cytokine genes IL1 β , IL6, IL17A, TNF α with clinical symptoms, has not been studied. The aim of the study is to investigate the characteristics of the immunological status and to develop differentiated approaches to the treatment of rheumatological diseases. A total of 379 patients with RD were examined and divided into several subgroups, along with 98 practically healthy individuals who voluntarily agreed to participate in the study. The results showed that after the application of levilimab, the level of pro-inflammatory cytokines decreased by 1.4 times, compared to methotrexate treatment. Thus, the homozygous state of the G allele in the phenotype of a patient with RA, ensuring a high level of IL-17A production, contributes to the good effectiveness of biologic therapy (GIBP).

Key words: rheumatological diseases, rheumatoid arthritis, systemic lupus erythematosus, ankylosing spondylitis, cytokines, autoimmune inflammation, genetically engineered biological drugs.

Babamuradova Zarrina Baxtiyarovna

DSc, dotsent, Pediatriya fakulteti Ichki kasalliklar kafedrası mudiri

Samarqand Davlat tibbiyot universiteti

Samarqand, O'zbekiston

РЕВМАТОЛОГИК КАСАЛЛИКЛАРНИНГ ИМУНОЛОГИК ЖИХАТЛАРИ ВА УЛАРНИ ДАВОЛАШ
ЙОНДАШУВЛАРИ

ANNOTATSIYA

Bugungi kunga kelib, Sog'liqni Saqlash tashkiloti ma'lumotlariga ko'ra, revmatologik kasalliklar (RK) dunyo bo'ylab nogironlikning yetakchi sabablaridan biri hisoblanadi. Autoimmun holatlar tizimining polimorf genlari (IL17A, IL17F, IL23R) va sitokin tizimi (TNF α , IL 1 β , IL4, IL6, IL10) ning RK kasalligining klinik kechishi va og'irlik darajasiga ta'siri hamda IL1 β , IL6, IL17A, TNF α sitokin genlarining klinik simptomlar bilan bog'liqligi hali o'rganilmagan. Tadqiqotning maqsadi – immunologik holatning o'ziga xos jihatlarini o'rganish va revmatologik kasalliklarni davolashda differensial yondashuvlarni ishlab chiqishdan iborat. Jami 379 nafar RK bemorlari bir nechta kichik guruhlariga bo'lingan holda o'rganildi, shuningdek, 98 nafar sog'lom ko'ngillilar tadqiqotda ishtirok etdi. Natijalarga ko'ra, levilimab qo'llangandan so'ng yallig'lanish jarayonini rag'batlantiruvchi sitokinlar darajasi 1,4 baravar pasaygani aniqlangan, bu metotreksat qo'llashdan farqli natija ko'rsatgan. Shunday qilib, RA bilan kasallangan bemorning fenotipidagi G allelining gomozigot holati IL-17A yuqori ishlab chiqarilishiga olib kelib, gen-injener biologik vositalar (GIBV) terapiyasining samaradorligini oshirishga yordam beradi.

Kalit so'zlar: revmatologik kasalliklar, revmatoid artrit, tizimli qizil yuguruk, ankilozan spondilit, sitokinlar, autoimmun yallig'lanish, genetik muhandislik biologik preparatlar.

Relevance. Today, according to the World Health Organization, rheumatological diseases are one of the leading causes of disability worldwide. Their origin is manifested in the development of an autoimmune process resulting from disorders in the immune system. According to the World Health Organization, "...rheumatological diseases occur in 1-5% of the population, resulting in a 60% probability of complications, and a new case of the disease can be detected in 0.02% of the population within a year..." Therefore, based on genetic studies, it is necessary to improve early diagnosis, prevention, and treatment methods, reduce complications, and provide practical assistance to patients at various stages of medical care for rheumatological diseases (RD), including rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), and ankylosing spondylitis (AS). Preventing and reducing complications, providing practical assistance to patients at various stages of medical care, and developing principles for timely selection of the most optimal treatment method are among the main tasks being addressed in medicine.

Numerous scientific studies are being conducted worldwide aimed at studying the role of cytokines in the pathogenetic mechanisms of RD development, improving methods for early and differential diagnosis, treatment, and prevention of the disease. In this regard, an analysis of the distribution of allelic and genotypic forms of autoimmune state genes IL17A, IL17F, IL23 and cytokine system genes such as TNF α , IL1 β , IL4, IL6, IL10 in RD has been conducted. These genes are of particular importance in determining disease severity in arthritis, assessing the significance of immunogenetic factors, selecting optimal treatment methods considering genetic predisposition, predicting these pathologies, and conducting scientific research aimed at early diagnosis.

In recent years, a number of studies on RD have been conducted in developed countries worldwide. To date, certain scientific views have been formed globally regarding its pathogenetic mechanisms: determining the pathogenetic mechanisms of RA, SLE, and AS formation and development is one of the priority tasks in several major scientific centers worldwide (Malysheva I.E., Topchieva L.V., Balan O.V., Marusenko I.M., Barysheva O.Yu., Kurbatova I.V.). It is known that in the development of rheumatoid arthritis, firstly, individual characteristics and the body's predisposition, and secondly,

immunological (ACCP), rheumatoid factor (RF), and genetic factors play a leading role (Jahid M, Rehan-Ul-Haq, Avasthi R, Ahmed RS. Interleukin10-1082 A/G polymorphism: Allele frequency, correlation with disease markers, messenger RNA and serum levels in North Indian rheumatoid arthritis patients, 2018). Furthermore, a major recent study has shown that immunogenetic factors contribute significantly to the mechanisms of SLE occurrence (Lewis MJ, Barnes MR, Blighe K. et al. Molecular Portraits of Early Rheumatoid Arthritis Provided Clinical and Treatment Response Phenotypes, 2019).

However, analysis of the cited literature indicates that the role of polymorphic genes of the autoimmune system (IL17A, IL17F, IL23R) and the cytokine system (TNF α , IL1 β , IL4, IL6, IL10) in the differential clinical course and disease severity of RD has not been studied. The correlation of polymorphic cytokine genes IL1 β , IL6, IL17A, TNF α with clinical symptoms has not been examined, the level of DAS28 activity and their prognostic significance have not been determined. The effectiveness of treatment with genetically engineered biological preparations (GIBP) has not been studied in relation to the transfer of allelic and genotypic forms of autoimmune system genes (IL17A, IL17F, IL23R) and cytokine system polymorphic genes (TNF α , IL-1 β , IL4, IL6, IL10).

Based on the above, it is possible to conduct scientific research aimed at early diagnosis of RA, SLE, and AS among RD, studying the features of clinical, laboratory, and immunogenetic manifestations, and increasing the effectiveness of treatment.

The aim of the study is to investigate the characteristics of immunological status and develop differentiated approaches to the treatment of rheumatological diseases.

Materials and Methods

A total of 379 patients with rheumatological diseases were examined, divided into several subgroups, and 98 practically healthy individuals who voluntarily agreed to participate in the study. The research was conducted from 2021 to 2023 at the Samarkand City Medical Association and the 1st Multidisciplinary Clinic No. 1 of Samarkand State Medical University.

A comprehensive approach was used for this work, including clinical, laboratory, ultrasound, radiological, and statistical research methods.

- Subgroup 1 (n=168): patients diagnosed with rheumatoid arthritis (RA).
- Subgroup 2 (n=103): patients diagnosed with systemic lupus erythematosus (SLE).
- Subgroup 3 (n=108): patients diagnosed with ankylosing spondylitis (AS).

The diagnosis of RA was established based on the ACR/EULAR 2010 criteria (American College of Rheumatology / European League Against Rheumatism) and ICD. SLE was diagnosed based on the ACR/EULAR 2019 criteria. Ankylosing spondylitis was diagnosed based on the ASAS criteria for axial spondyloarthritis (2009) according to the Russian version of the modified New York classification criteria for AS (2013). Inclusion and exclusion criteria were developed in accordance with the planned clinical and laboratory examinations and diagnoses. The disease was mainly characteristic of the 35-40 age group (41.6%), with women outnumbering men by 2.5 times.

Clinical studies involved clarifying complaints, reviewing medical histories and outpatient records, studying anamnestic data and the initial examination protocol, and analyzing the features of disease progression in different categories of patients. Instrumental studies included joint radiography, ECG, internal organ ultrasound, and Doppler echocardiography (Mindray Resona I9). RA activity was assessed using the international DAS28 activity index, calculated using the formula: $DAS-28 = 0.56 * \sqrt{TJC} + 0.28 * \sqrt{SJC} + 0.70 * \ln ESR + 0.014 * GH$

Molecular genetic studies were conducted in the laboratory of medical genetics at the Republican Specialized Scientific and Practical Medical Center of Hematology (Republic of Uzbekistan, Tashkent). These studies involved detecting variants of cytokine genes related to autoimmune status (IL17A, IL-17F, IL23R) and cytokine system genes (TNF α , IL1 β , IL4, IL6, IL10) using standard PCR with subsequent analysis of restriction fragment length polymorphism (RFLP) of PCR products. The PCR protocol included preliminary denaturation (1 cycle) for 1 min at 94°C; 35 amplification cycles, including denaturation for 10 sec at 93°C, primer annealing for 10 sec at 64°C, elongation for 20 sec at 72°C, and final synthesis for 1 min at 72°C; storage (10 min); verification of the specificity and quantity of amplified fragments by agarose gel electrophoresis; after purification from unincorporated nucleotides, capillary electrophoresis was performed using a 3130 genetic analyzer (Applied Biosystems, USA).

According to the treatment plan, the patients were divided into the following subgroups:

- Group 1 is divided into subgroups A and B, where "A" consisted of 50 patients who received DMARDs in the form of methotrexate, and subgroup "B" consisted of 53 patients who received bDMARDs in the form of leflunomide (LLM);
- Group 2 is also divided into subgroups A and B, where "A" consisted of 19 patients receiving "small" immunosuppressants (Hydroxychloroquine), and subgroup "B" consisted of 16 patients receiving other immunosuppressants (Mycophenolate mofetil);
- Group 3 is divided into subgroups A and B, respectively, where "A" consisted of 16 patients who received DMARDs in the form of methotrexate, and subgroup "B" consisted of 16 patients who received bDMARDs in the form of secukinumab;

The examination was conducted dynamically: at 6 and 12 months from the start of treatment. The effectiveness was assessed based on clinical, laboratory, and instrumental studies.

Mathematical analysis of the obtained results was carried out using the OpenEpi 2009, Version 2.3 software.

Research results and discussion

During the general clinical study of patients with rheumatic diseases (RD), we evaluated the activity of rheumatoid arthritis (RA), systemic lupus erythematosus (SLE), and ankylosing spondylitis (AS) depending on the form of the disease. This showed a correspondence of pain levels according to VAS: 65.6 mm, 53.2 mm, and 78 mm respectively. The number of tender joints (TJC) was 1.6 times higher among patients with RA compared to SLE, and 1.4 times higher compared to AS (20.7 versus 12.6 and 20.7 versus 14.7, respectively).

A similar pattern was observed in relation to the number of swollen joints (SJC) and morning stiffness. Their values in RD were as follows: in RA - 12.6 and 116.4 min, in SLE - 4.2 and 33.7 min, in AS - only morning stiffness was noted, lasting approximately 35.8 min. At the same time, the assessment of RA activity according to the average ESR and DAS28 values also showed the highest figures in patients with the articular-visceral form of RA. Specifically, while the median of these indicators among patients with the articular form was 30.2 mm/h and 3.4, in the articular-visceral form, they were 46.8 mm/h and 4.8, respectively.

When diagnosing RA, symmetrical arthritis of the hand joints was present in 90% of the examined patients. In patients with SLE, dynamic observation revealed the predominance of an asymmetrical pattern of small joint involvement in the hands. The frequency of this sign in this category of patients was significantly lower compared to patients with rheumatoid arthritis at the time of diagnosis ($p < 0.01$) (Figure 1).

Systemic manifestations of RA were recorded in 37 (22%) patients. The most frequent of these were anemia in 134 (80%), weight loss in 67 (40%), amyotrophy in 142 (85%), fever in 88 (52.5%), and rheumatoid nodules in 28 (16.7%).

Among SLE patients, skin lesions were most common in 51 (49%), kidney lesions in 56 (55%), and photosensitization in 42 (41%), respectively. Among patients with kidney disease, 16 out of 103 individuals had a nephrotic syndrome with proteinuria exceeding 3g per day, hypoproteinemia and hypoalbuminemia, hyperlipidemia (cholesterol more than 6.5 mmol/l), and 45 of them had edema. The most common variant of AS among our patients was axial skeletal damage (sacroiliitis and/or spondyloarthritis) - in 73 (79%). The second most common is peripheral joint arthritis (primarily of the lower extremities) - 23 (24.8%). Significantly less frequently, combined lesions of the axial skeleton and peripheral joints were observed - in 12 (13%). Among patients with AS, in addition to the most important clinical signs, extra-articular manifestations were also noted, such as uveitis 6 (5.5%), iridocyclitis 14 (12.9%), colitis 11 (10.2%), enthesitis 23 (21.3%), and dactylitis 4 (3.7%), respectively. It is important to know that the course of AS can worsen with the involvement of extra-articular manifestations of this disease.

According to our research, the limitation of functional activity was also determined by the HAQ index. The study results showed that functional preservation was noted in 20.8% (35) of RA patients (0-points), in AS patients 0 points was also noted in 39.80% (53), but in SLE, many patients - 84.50% (87) preserved functional activity, as the severity of joint damage in these patients was milder than in RA and AS. In RA patients, 41.6% (70) of patients had 1 score, including 33.3% (46) of patients with AS had 1 score, and in SLE, only 15.5% (16) of patients had 1 score, also according to the HAQ index, 2 points

were identified: with RA in 25% (42) and with AS in 8.3% (9) respectively, these patients could perform physical work with great difficulty, only in RA patients, 3 points were identified in

13.5% (21) of patients who had no opportunity to perform physical work and needed help from others (Figure 2).

Figure 1. Joint lesions in study groups

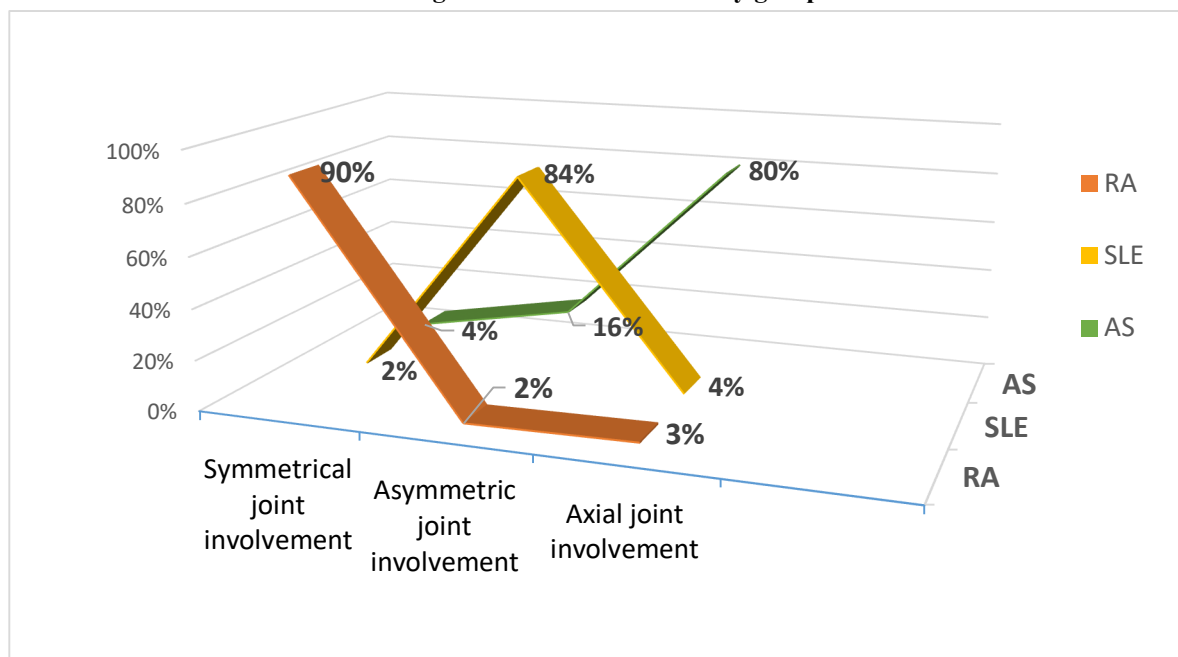
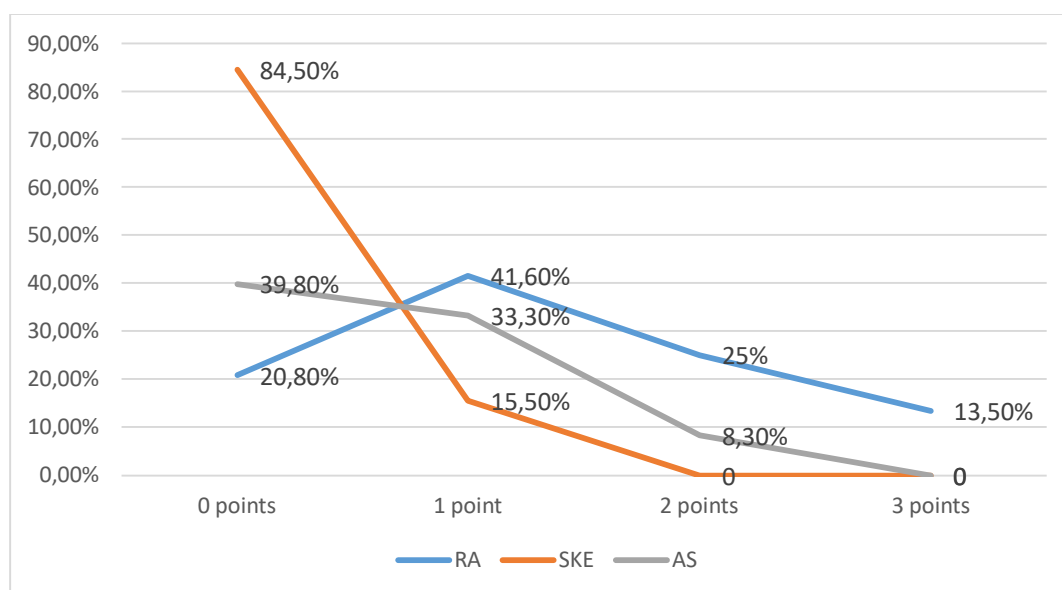


Figure 2. HAQ-index functional limitation



Among patients with RD, seropositivity for cyclic citrullinated peptides (CCCP) was detected in 158 (42%) patients, while seronegativity was detected in 221 (58%) patients and CG.

An important analysis for SLE is the analysis for ANF. In our examined patients, the ANA titer was significantly higher compared to the CG, with an average of 1:640 titers in patients with SLE, which is 4 times higher than in the CG. According to our research results, positive ANA determination indicators were included among the diagnostic criteria for SLE, which were used to assess the activity, prognosis, and characteristics of the clinical and laboratory subtypes of the disease, and also served as predictors of SLE development in the preclinical stage. Another important study in AS is the typology of HLA-B27 in

AS. Certain areas of DNA molecules of biological objects were identified using the polymerase chain reaction (PCR) method. The analysis was performed in three stages: isolation, replication, and recognition of DNA fragments. The identification of certain DNA fragments, particularly the HLA-B27 antigen, was carried out using reference genetic detectors. The result of this analysis showed the "discovery" of HLAB27 in 95% of cases in the AS group.

To determine the role of cytokine status, the levels of pro-inflammatory cytokines IL-1 β , IL-6, IL-17A, tumor necrosis factor alpha (TNFA- α) were studied.

As a result of the conducted research, a statistically significant increase in the concentrations of IL-1 β , IL-6, IL-17A, TNFA- α in patients with RD was revealed compared to the

control group ($p=0.03$, respectively). In SLE patients, IL-1 β concentrations were found to be lower compared to RA and AS, however, the level of TNF- α was 1.5 times higher in AS

patients compared to SLE and RA ($p=0.05$). The hyperproduction of the pro-inflammatory cytokine IL-1 β was determined in RA patients compared to SLE (Table 1).

Table 1

Cytokine levels in patients with RS and CG, M $\pm$ m, pg/ml					
Cytokines	RD(n=379)			Control group (n=98)	P-value
	RA (n=168)	SLE (n=103)	AS (n=108)		
IL -1 β	14,8 $\pm$ 8,4	12,3 $\pm$ 6,2	17,8 $\pm$ 9,3	11,2 $\pm$ 3,2	0,037
IL -6	18,40 $\pm$ 5,11	14,65 $\pm$ 0,43	12,34 $\pm$ 4,73	7,4 $\pm$ 0,34	0,03
IL -17A	7 $\pm$ 4,11	8 $\pm$ 2,11	12 $\pm$ 5,41	5 $\pm$ 0,11	0,05
TNF- α	11,02 $\pm$ 0,77	8,50 $\pm$ 0,45	12,32 $\pm$ 1,25	7,8 $\pm$ 3,11	0,039

TNF- α is a powerful inducer of the synthesis of another pro-inflammatory cytokine - IL-6, the concentration of which closely correlates with the clinical and laboratory parameters of the activity of the inflammatory process in RS.

In our subjects, there was improvement in the dynamics of symmetrical, asymmetrical, and axial joint lesions, where joint swelling, hyperemia, and inflammatory pain decreased, which is

confirmed by the DAS28 indicators, disease activity in this table, in patients of subgroup "A" by 1.2 times, in subgroup "B" by 1.5 times, therapy effectiveness was noted ($p<0.03$). To determine the effectiveness of NSAIDs and HIPP, in particular, the IL6 inhibitor, the levels of pro-inflammatory cytokines IL-1 β , IL-6, tumor necrosis factor alpha (TNF- α) and after treatment of RD were studied (Table 2).

Table 2

Indicators of cytokine levels IL1 β , IL6, IL17A, TNF- α in patients with AR before and after treatment of NSAIDs and HIPP

Indicators :	1st group - RA patients,		2nd group - SLE patients		3rd group - AS patients		P-value
	«A» unit/ml n=50	«B» unit/ml n=53	«A» unit/ml n=19	«B» unit/ml n=16	«A» unit/ml n=17	«B» unit/ml n=17	
IL -1 β	14,8 $\pm$ 8,4	15,8 $\pm$ 8,1	12,3 $\pm$ 6,2	13,3 $\pm$ 5,2	17,8 $\pm$ 9,3	17,8 $\pm$ 1,3	$p<0.03$
	12,8 $\pm$ 7,4	12,1 $\pm$ 0,4	12,3 $\pm$ 6,2	11,3 $\pm$ 3,2	16,8 $\pm$ 3,3	15,8 $\pm$ 2,3	
IL -6	18,40 $\pm$ 5,11	17,30 $\pm$ 4,11	14,65 $\pm$ 0,43	14,5 $\pm$ 1,3	12,34 $\pm$ 4,73	11,41 $\pm$ 1,71	$p<0.05$
	16,20 $\pm$ 2,11	15,70 $\pm$ 4,11	11,65 $\pm$ 0,43	9,45 $\pm$ 0,23	11,21 $\pm$ 1,8	9,38 $\pm$ 1,53	
IL -17A	7 $\pm$ 4,11	7,4 $\pm$ 3,12	8 $\pm$ 2,11	8 $\pm$ 2,45	12 $\pm$ 5,41	12 $\pm$ 4,11	$p<0.001$
	6,5 $\pm$ 3,1	5,4 $\pm$ 2,8	7,2 $\pm$ 2,21	6 $\pm$ 1,25	11 $\pm$ 2,32	12 $\pm$ 1,08	
TN F- α	11,02 $\pm$ 0,77	12,22 $\pm$ 2,77	8,50 $\pm$ 0,45	8,41 $\pm$ 1,23	12,32 $\pm$ 1,25	11,82 $\pm$ 1,02	$p<0.003$
	10,02 $\pm$ 0,77	9,82 $\pm$ 1,17	8,50 $\pm$ 0,45	7,10 $\pm$ 1,05	11,22 $\pm$ 0,54	9,42 $\pm$ 1,35	

Analysis showed that with the course of RA, inflammatory and autoimmune reactions are accompanied by a higher level, which was confirmed by a significantly higher level of cytokines, as in RA patients, an increase in the level of IL-1 β by 1.3 times, IL-6 by 2.5 times, and TNF- α by 1.5 times was observed, but in comparison with these indicators after pharmacotherapy, there was a relative improvement, in particular in subgroup "B," since IL-6 inhibitors in active RA effectively suppress the immunoinflammatory process and have a favorable safety profile. Analysis showed that after the use of levilybam, a decrease in the level of pro-inflammatory cytokines was noted by 1.4 times compared to the use of methotrexate. The decrease in TNF- α levels in AS patients, against the background of secukinumab use, indicates the direct effect of IL-17A inhibitor on the production of immune mediators - TNF- α .

Conclusions.

1. The complex of conducted studies made it possible to

establish the important role of clinical, laboratory-instrumental, cytokine analysis, and specific markers for a differentiated approach to the diagnosis of AR, where DAS28 and VAS ($P<0.001$), increased levels of RF, ACEP, ANA ($P<0.001$; $P<0.01$), which proves a more severe course of the disease.

2. It has been established that the study of clinical, instrumental, laboratory, and immunological indicators, depending on the clinical form of RD, plays a significant role, which serves as a pathogenetic basis for improving the criteria for predicting the likelihood of increased risk of development and severity of the disease.

3. The effectiveness of GIBP therapy (levilimab in RA and secukinumab in AS) in patients admitted 6 months after treatment was evaluated. The homozygous state of the G allele in the RA patient's phenotype, while ensuring a high level of IL-17A production, contributes to the good effectiveness of GIBP therapy.

References / Список литературы / Iqriboslar

1. Бабамурдова З. Б., Шавази Н. Н. РОЛЬ АНГИОГЕННЫХ ФАКТОРОВ РОСТА В ПАТОГЕНЕЗЕ ПРЕЖДЕВРЕМЕННЫХ РОДОВ У БЕРЕМЕННЫХ НА ФОНЕ НЕДИФФЕРЕНЦИРОВАННОЙ ДИСПЛАЗИИ СОЕДИНИТЕЛЬНОЙ ТКАНИ С ПРОЛАПСОМ МИТРАЛЬНОГО КЛАПАНА //Journal of cardiorespiratory research. – 2022. – Т. 3. – №. 2. – С. 41-43.

2. Бабамурадова З. Б., Шодикулова Г. З. ОЦЕНКА ПРОГНОСТИЧЕСКИХ ПАРАМЕТРОВ АНКИЛОЗИРУЮЩЕГО СПОНДИЛОАРТРИТА //Журнал гуманитарных и естественных наук. – 2024. – №. 11 [2]. – С. 219-226.
3. Бабамурадова З. Б., Шодикулова Г. З. ОЦЕНКА КЛИНИКО-ИММУНОЛОГИЧЕСКИХ ПОКАЗАТЕЛЕЙ ПРИ СИСТЕМНОЙ КРАСНОЙ ВОЛЧАНКЕ //Confrencea. – 2024. – Т. 1. – №. 1. – С. 391-393.
4. Шавазии Н. Н., Бабамурадова З. Б. Соотношение про-и Антиангиогенных факторов в патогенезе преждевременных родов у беременных на фоне недифференцированной дисплазии соединительной ткани //European Research: innovation in science, education and technology. – 2020. – С. 93-96.
5. Babamuradova Z. B., Shavazi N. N. Assessment of the efficacy and safety of biological agents in rheumatoid arthritis //Journal of Advanced Medical and Dental Sciences Research. – 2021. – Т. 9. – №. 6. – С. 26-31.
6. Babamuradova Z. B., Shodikulova G. Z. Study of the Effectiveness of the Use of Monoclonal Antibodies in Rheumatological Diseases //Annals of the Romanian Society for Cell Biology. – 2021. – С. 3802-3805.
7. Babamuradova Z., Akhmedzhanova D. INFLUENCE OF ETIOLOGICAL FACTORS ON OSTEOARTHRITIS OF THE KNEE JOINTS //InterConf. – 2022.
8. Barbieri P., Olivieri I., Benedettini C. et all. Polyclonal B-cells activation in ankylosing spondylitis // Ann. Rheum. Dis. - 2010. - № 6. - P. 396-399.
9. Beyeler C. Spondylarthritis - a family of inflammatory - rheumatic disease // Ther. Umsch. - 2014. - № 6. - 18-24.
10. Bollow M., Braun J., Hamm B. Sacroiliitis: the key symptoms of spondyloarthropathies. 1. the clinical aspects // Rofo Fortschr Geb Rontgenstr Neuen Bildgeb Verfahr. - 2017. - № 2. - P. 95-100.
11. Bot S.D.M., Caspers M., Van Royen B.J. et all. Biomechanical analisis of posture in patients with spinal kiphosis due to ankylosing spondylitis: a pilot stady // Rheumatology. - 2014. - № 38. - P. 441-443.
12. Broun M.A., Jepson A., Young A. et all. Ankylosing spondylitis in West Africans - evidence for a non HLA-B27 protective effect // Ann. Rheum. Dis. - 2017. - № 56. - P. 68-70.
13. Calin A. Spondylarthritis update 2000 // 91st Asia Pasific Leaque of Associations for Rheumatology Congress./ Abstracts. - China, 2010. - P. 32.
14. Chin J.T., Htfield C.A., Krzesicki R. et all. Interactions between intrleukin-1 and basic fibroblast growth factor on articular chondrocytes // Arthr. Rheum. - 2011.-№3. -P. 314-324.
15. Chou C.-T. Immunogenetics and family studies in ankylosing spondylitis // 9th Asia Pasific League of Associations for Rheumatology Congress / Abctracts. -China, 2015.-P. 20.
16. Gu J., Huang F., Yu D.T.Y. Gent expression profiles of periferal blood mononuclear cells in ankylosing spondylitis // 9th Asia Pasific Leaque of Associations for Rheumatology congress / Abstracts. - 2015. - P. 32.
17. Guiyng S. Clinical features of ankylosing spondylitis in China // 9th Asia Pasific League of Associations for Rheumatology Congress / Abstracts. - China, 2017.-P. 18-19.
18. Houshan L. Surgical treatment for severe ankylosing spondylitis // 9th Asia Pasific League of Associations for Rheumatology Congress / Abstracts. - China, 2018. - P. 27
19. Kamolidinovna T. Z., Zikriyayevna S. G. RISK FACTORS AND FEATURES OF CORONARY HEART DISEASE IN PATIENTS WITH RHEUMATOID ARTHRITIS //JOURNAL OF BIOMEDICINE AND PRACTICE. – 2022. – Т. 7. – №. 6.
20. Martinez-Borra J., Gonzalez S., Lopez-Lrrea C. Genetic factors predisposing to spondylarthropathies // Arthr. Rheum. - 2016. - № 3. - P. 485-492.
21. Mitra D., Elvins D.M., Speden D.J., Collins A.J. The prevalence of vertebral fractures in mild ankylosing spondylitis and their relationship to bone mineral density // Rheumatology. - 2017. - № 39. - P. 85-89.
22. Shodikulova G. Z. et al. The Correlation among Osteoporosis, Calcium-Phosphore Metabolism and Clinical Symptoms of Main Disease in Patients with Rheumatoid Arthritis //Annals of the Romanian Society for Cell Biology. – 2021. – С. 4185-4190.
23. Shodikulova G., Sadikova S. AGE-RELATED ASPECTS OF OSTEOARTHRITIS IN WOMEN //Академические исследования в современной науке. – 2024. – Т. 3. – №. 28. – С. 161-162.
24. Sieper J. Role of cytokines in the pathogenesis of different forms of artlritides // 9th Asia Pacific League of Associations for Rheumatology Congress. / Abstracts. - China, 2018. - P. 107.
25. Will R., Buchonan J., Byrne A. et all A randomized comparison of intensive versus less intensive for ankylosing spodylitis // 9th Asia Pasific League of Associations for Rheumatology Congress / Abstracts. - China, 2020 -P. 272.
26. Zikriyayevna S. G., Tolmasovich A. T. COMPARATIVE ANALYSIS OF TYPE I COLLAGEN ANTIBODIES AND THEIR RELATIONSHIP TO Mg⁺ 2 LEVELS IN PATIENTS WITH UNDIFFERENTIATED CONNECTIVE TISSUE DYSPLASIA //Asian journal of pharmaceutical and biological research. – 2022. – Т. 11. – №. 2.
27. Zikriyayevna S. G. et al. GENETIC MECHANISMS OF OSTEOARTHRITIS OF THE FEMORAL HIP JOINT //European International Journal of Multidisciplinary Research and Management Studies. – 2024. – Т. 4. – №. 08. – С. 25-30.

28. Zikriyayevna S. G. et al. CLINICAL FEATURES AND IMMUNOLOGICAL MECHANISMS OF DEVELOPMENT OF OSTEOARTHRITIS OF THE FEMORAL HIP JOINT //International Journal of Medical Sciences And Clinical Research. – 2024. – Т. 4. – №. 08. – С. 23-28.

29. Zhu J., Huang F, Liu X Th1 / Th2 balance and ankylosing spondylitis // 9th Asia Pasific League of Associations for Rheumatology Congress / Abstracts. - China, 2019 - P 107.