ISSN 2306-5559 (print)
ISSN 2410-938X (online)

www.vhk.kz

А.Н.Сызғанов
атындағы
ҰЛТТЫҚ
ҒЫЛЫМИ ХИРУРГИЯ
ОРТАЛЫҒЫ

№ 2 (67) 2021

ҚАЗАҚСТАН ХИРУРГИЯСЫНЫҢ ХАБАРШЫСЫ

ВЕСТНИК ХИРУРГИИ КАЗАХСТАНА

BULLETIN OF SURGERY IN KAZAKHSTAN

АЛМАТЫ /ALMATY

№ 2 (67) 2021
Издается с 2005 г.
ISSN 2306-5559 (print)
ISSN 2410-938X (online)

ҚАЗАҚСТАН ХИРУРГИЯ ХАБАРШЫСЫ
ВЕСТНИК ХИРУРГИИ КАЗАХСТАНА
BULLETIN OF SURGERY IN KAZAKHSTAN

әр тоқсанда шығып тұратын А.Н. Сызғанов атындағы Ұлттық ғылыми хирургия орталығының ғылыми-тәжірибелік журналы
ежеквартальный научно-практический журнал Научного центра хирургии им. А.Н. Сызганова
a quarterly scientific-practical journal of the «A.N. Syzganov National Scientific Center for Surgery» JSC

БАС РЕДАКТОР

Баймаханов Б.Б.,
«А.Н. Сызғанов атындағы Ұлттық ғылыми хирургия орталығы» АҚ басқарма Төрағасы, м.ғ.д., профессор, ҚР ҰҒА академигі

БАС РЕДАКТОРДЫҢ ОРЫНБАСАРЫ

Чорманов А.Т.,
«А.Н. Сызғанов атындағы Ұлттық ғылыми хирургия орталығы» АҚ Басқарма Төрағасының ғылыми-клиникалық және инновациялық қызмет жөніндегі орынбасары, м.ғ.к.

РЕДАКЦИЯ АЛҚАСЫ

Баймаханов Ж.Б., *PhD;*
Нерсесов А.В., *м.ғ.д.;*
Сейсембаев М.А., *м.ғ.д., профессор;*
Сұлтаналиев Т.А., *м.ғ.д., профессор;*
Баимбетов А.К., *PhD;*
Булегенов Т.А., *м.ғ.д.;*
Миербеков Е.М., *м.ғ.д., профессор;*
Жураев Ш.Ш., *м.ғ.д., профессор;*
Медеубеков Ұ.Ш., *м.ғ.д., профессор;*
Сағатов І.Е., *м.ғ.д.;*
Мутагиров В.В., *м.ғ.к;.*
Ширтаев Б.К., *м.ғ.к.;*
Мурадов М.И., *м.ғ.к.;*
Баймаханов А.Н., *м.ғ.к.*

РЕДАКЦИЯ КЕҢЕСІ

Susumu Eguchi *(Жапония);*
Wojciech Polak *(Голландия);*
Remzi Emiroglu *(Түркия);*
Bulent Oktay *(Түркия);*
Tamer Turan *(Түркия);*
Subhash Gupta *(Индия)*
Jeong Tea Kim *(Корея);*
Владимир Вишневский *(Ресей);*
Иван Стилиди *(Ресей);*
Олег Руммо *(Беларус);*
Hannu Kuokkanen *(Финляндия);*
Ho-Seong Han *(Корея);*
Mehmet Habera *(Түркия);*
Дильгам Магеррамов *(Әзірбайжан).*

ГЛАВНЫЙ РЕДАКТОР

Баймаханов Б.Б.,
Председатель правления АО «Национальный научный центр хирургии им. А. Н. Сызганова», д.м.н., профессор, академик НАН РК

ЗАМЕСТИТЕЛЬ ГЛАВНОГО РЕДАКТОРА

Чорманов А.Т.,
Заместитель Председателя правления по научно-клинической и инновационной деятельности АО «Национальный научный центр хирургии им. А.Н. Сызганова», к.м.н.

РЕДАКЦИОННАЯ КОЛЛЕГИЯ

Баймаханов Ж.Б., *Ph.D;*
Нерсесов А.В., *д.м.н.;*
Сейсембаев М.А., *д.м.н., профессор;*
Султаналиев Т.А., *д.м.н., профессор;*
Баимбетов А.К., *Ph.D;*
Булегенов Т.А., *д.м.н., доцент;*
Миербеков Е.М., *д.м.н., профессор;*
Жураев Ш.Ш., д*.м.н., профессор;*
Медеубеков У.Ш., *д.м.н., профессор;*
Сагатов И.Е., *д.м.н.;*
Мутагиров В.В., *к.м.н.;*
Ширтаев Б.К., *к.м.н.;*
Мурадов М.И., *к.м.н.;*
Баймаханов А.Н., *к.м.н.*

РЕДАКЦИОННЫЙ СОВЕТ

Susumu Eguchi *(Япония);*
Wojciech Polak *(Голландия);*
Remzi Emiroglu *(Турция);*
Bulent Oktay *(Турция);*
Tamer Turan *(Турция);*
Subhash Gupta *(Индия);*
Jeong Tea Kim (*Корея);*
Владимир Вишневский *(Россия);*
Иван Стилиди *(Россия);*
Олег Руммо (*Беларусь);*
Hannu Kuokkanen *(Финляндия);*
Ho-Seong Han *(Корея);*
Mehmet Habera *(Турция);*
Дильгам Магеррамов *(Азербайджан).*

EDITOR IN CHIEF

Baimakhanov B.B.,
Chairman of the Board of «A.N. Syzganov National Scientific Center for Surgery» JSC, D.Med.Sc., professor, academician of NAS RK

DEPUTY CHIEF EDITOR

Chormanov A.T.,
Vise-Chairman of the Board on scientific-clinical and innovation activity of «A.N. Syzganov National Scientific Center for Surgery» JSC, candidate of medical sciences

EDITORIAL BOARD

Baimakhanov Zh.B., *PhD;*
Nersesov A.V., *D.Med.Sc.,*
Seisembayev M.A., *D.Med.Sc., prof.;*
Sultanaliev T.A., *D.Med.Sc., prof.;*
Baimbetov A.K., *PhD;*
Bulegenov T.A. *D.Med.Sc.,*
Miyerbekov Ye.M., *D.Med.Sc., prof.;*
Zhurayev Sh.Sh., *D.Med.Sc., prof.;*
Medeubekov U.Sh., *D.Med.Sc., prof.;*
Sagatov I.Ye., *D.Med.Sc.,*
Mutagirov V.V. *Can.Med.Sc.*
Shirtayev B.K., *Can.Med.Sc.;*
Muradov M.I., *Can.Med.Sc.;*
Baimakhanov A.N. *Can.Med.Sc.*

EDITORIAL COUNCIL

Susumu Eguchi *(Japan);*
Wojciech Polak *(Holland);*
Remzi Emiroglu *(Turkey);*
Bulent Oktay *(Turkey);*
Tamer Turan *(Turkey);*
Subhash Gupta *(India);*
Jeong Tea Kim *(Korea);*
Vladimir Vishnevski *(Russia);*
Ivan Stilidi *(Russia);*
Oleg Rummo *(Belarus);*
Hannu Kuokkanen *(Finland);*
Ho-Seong Han *(Korea);*
Mehmet Habera *(Turkey);*
Dilgam Maherramov *(Azerbaijan).*

Журнал ҚР ақпарат, мәдениет және спорт Министрлігінде тіркелген.
Журнал ҚР ҒБМ Ғылым және білім саласындағы бақылау комитеті ұсынған Ғылыми еңбектің негізгі нәтижелерін жариялау үшін ұсынатын ғылыми баспалар тізбесі енгізілген.
Тіркеу нөмірі 5564-Ж.
Журналдың иесі – «А.Н. Сызғанов атындағы Ұлттық ғылыми хирургия орталығы» АҚ.
Баспаның мекен-жайы:
050004, Алматы қ., Желтоқсан көш. 62,
тел. 7(727) 2795306
http://vhk.kz, e-mail: inkar_sagatov@mail.ru
Әрленім және беттеу:
«*ДАНиЛЕНКО*» ЖК-де дайындалған,
Алматы қ., Чайковский көш. 23-3,
тел. 7(727) 2780172
Таралымы – 500 дана
Корректор: Давенова Н.А.
тел: 87789205192
Жарияланатын мақалалардың мазмұнына авторлар жауапты.

ҚАЗПОЧТА жазылу индексі – 75327

Журнал зарегистрирован в Министерстве информации, культуры и спорта РК.
Журнал включен в перечень научных изданий, рекомендуемых Комитетом по контролю в сфере образования и науки МОН РК
Регистрационный номер: 5564-Ж.
Владелец журнала - АО «Национальный научный центр хирургии имени А.Н. Сызганова».
Адрес редакции:
050004, г. Алматы, ул. Желтоксан, 62,
тел. 7 (727) 2795306
http://vhk.kz, e-mail: inkar_sagatov@mail.ru
Дизайн и верстка:
ИП «*ДАНиЛЕНКО*»,
г. Алматы, ул. Чайковского, 23-3,
тел. 7 (727) 2780172
Тираж – 500 экз.
Корректор: Давенова Н.А.
тел: 87789205192
Ответственность за содержание публикуемых материалов несут авторы.

Подписной индекс КАЗПОЧТЫ – 75327

The journal is registered with the Ministry of Information, Culture and Sports of the Republic of Kazakhstan.
The journal is included in the list of scientific publications recommended by the Committee for Control of Education and Science, Ministry of Education and Science of Kazakhstan.
Registration number: 5564-Ж
The owner of the journal - «A.N. Syzganov National Scientific Center for Surgery» JSC
Editorial address:
62, Zheltoksan street, Almaty, 050004
tel. 7 (727) 2795306
http://vhk.kz, e-mail: inkar_sagatov@mail.ru
Design and lead out:
«*ДАНиЛЕНКО*» SP,
23, Tchaikovsky street, apt.3, Almaty,
tel. 7 (727) 2780172
Edition – 500 copies.
Corrector: Davenova N.A.
tel: 87789205192
The authors are responsible for the content of published materials.

Subscript index of KAZPOST – 75327

МАЗМҰНЫ

ХИРУРГИЯ

Баймаханов Б.Б., Чорманов А.Т., Мададов И.К., Белгібаев Е.Б., Сырымов Ж.М., Дабылтаева Қ.С., Набиев Е.С., Садуақас Н.Т., Байыз А.Ж., Аипов Б.Р.
Тірі туыстық және мәйіттік донордан бүйрек трансплантациясынан кейінгі трансплантаттың өмір сүру деңгейі. 5

Баймаханов Б.Б., Набиев Е.Н., Қазантаев Қ.Е., Тұрдалиева Б.С., Мұхамедкерім Қ.Б., Мұрадов М.И., Қошкарбаев Д.Ж.
Қолдың жұмсақ тіндері жарақаттарының алшақ салдары. (Әдебиет шолуы) 10

Ширтаев Б.К., Сундетов М.М., Акильбеков С.Д., Халықов Қ.Ұ., Курбанов Д.Р.,Еримова Н.Ж., Алханов Б.А., Көкімбаев Д.А., Каназов А.К.
Көкірекаралық эхинококк кистасының кеуде қолқасына жарылуының клиникалық көрінісі 16

Сағатов І.Е., Уәлиева А.Е.
Кардиохирургиялық науқастардың операциядан кейінгі асқынған ағымының ықтималдығын болжау 20

Баубеков А.А., Миербеков Е.М., Егембердиев Т.Ж., Исраилова В.К., Маткеримов А.Ж., Тергеусизов А.С., Жакубаев М.А., Таджибаев Т.К., Шамшиев А.С., Маккамов Р.О., Садуақас А.Е., Еркінбаев Н.Н., Ханчи М.
«А.Н. Сызғанов атындағы ҰҒХО» АҚ ішкі ұйқы артерияларының стенозды зақымдануы кезінде жүргізілген емге 5-жылдық ретроспективті шолу 26

Таджибаев Т.К., Камал М.Б., Маткеримов А.Ж., Енин Е.А., Баубеков А.А., Демеуов Т.Н., Тергеусизов А.С., Жакубаев М.А., Маккамов Р.О., Садуакас А.Е., Еркінбаев Н.Н.
Хемодектомалар: хирургиялық емдеу тәжірибесі және асқынулардың периоперативті қауіп факторлары 30

СОДЕРЖАНИЕ

ХИРУРГИЯ

Баймаханов Б.Б., Чорманов А.Т., Мададов И.К.,Белгибаев Е.Б., Сырымов Ж.М., Дабылтаева К.С., Набиев Е.С., Садуакас Н.Т., Байыз А.Ж., Аипов Б.Р.
Выживаемость трансплантата после трансплантации почки от живого родственного и кадаверного донора. 5

Баймаханов Б.Б., Набиев Е.Н., Казантаев К.Е., Турдалиева Б.С., Мухамедкерим К.Б., Мурадов М.И., Кошкарбаев Д.Ж.
Отдаленные последствия травм мягких тканей кисти. (Обзор литературы) 10

Ширтаев Б.К., Сундетов М.М., Акильбеков С.Д., Халыков К.У., Курбанов Д.Р., Еримова Н.Ж., Алханов Б.А., Кокимбаев Д.А., Каназов А.К.
Клинический случай эхинококковой кисты средостения с прорывом в аорту. 16

Сагатов И.Е., Уалиева А.Е.
Прогнозирование вероятности осложненного послеоперационного течения у пациентов кардиохирургического профиля 20

Баубеков А.А., Миербеков Е.М., Егембердиев Т.Ж., Исраилова В.К., Маткеримов А.Ж., Тергеусизов А.С., Жакубаев М.А., Таджибаев Т.К., Шамшиев А.С., Маккамов Р.О., Садуакас А.Е., Еркинбаев Н.Н., Ханчи М.
Ретроспективный обзор проведенного лечения при стенозирующих поражениях внутренних сонных артерий за 5 лет в условиях АО «ННЦХ им. А.Н. Сызганова» 26

Таджибаев Т.К., Камал М.Б., Маткеримов А.Ж., Енин Е.А., Баубеков А.А., Демеуов Т.Н., Тергеусизов А.С., Жакубаев М.А., Маккамов Р.О., Садуакас А.Е., Еркинбаев Н.Н.
Хемодектомы: опыт хирургического лечения и периоперативные факторы риска осложнений 30

CONTENTS

SURGERY

Baimakhanov B.B. Chormanov A.T., Madadov I.K., Belgibaev E.B., Syrymov Zh.M., Dabyltaeva K.S., Nabiev E.S., Saduakas N.T., Baiyz A.Zh., Aipov B.R.
Graft survival rates after kidney transplantation from a living related and cadaveric donor 5

Baimakhanov B.B., Nabiev E.N., Kazantayev K.E., Turdalieva B.C., Mukhamedkerim K.B., Muradov M.I., Koshkarbayev D. Zh.
Long-term consequences of the hand soft tissue injuries. (Review). 10

Shirtaev B. K., Sundetov M. M., Akilbekov S. D., Khalykov K.U., Kurbanov D. R., Erimova N. ZH., Alkhanov B. A., Kokimbaev D. A., Kanazov A.K.
A clinical case of an echinococcal mediastinal cyst with a breakthrough in the aorta. 16

Sagatov I.Y., Ualieva A.Y.
The postoperative complicated course probability prediction in cardiac surgical patients 20

Baubekov A.A.,Mierbekov E.M., Egemberdiev T.Zh., Israilova V.K., Matkerimov A.Zh., Tergeusizov A.S., Zhakubaev M.A., Tadjibaev T.K., Shamshiev A.S., Makkamov R.O., Saduakas A.E., Erkinbayev N.N., Khanchi M.
A retrospective review of the treatment performed for stenosing lesions of the internal carotid arteries, over 5 years in the conditions of JSC NSCS 26

Tajibayev T.K., Kamal M.B., Matkerimov A.Zh., Yenin E.A., Tergeussizov A.S., Baubekov A.A., Demeuov T.N., Zhakubaev M.A., Makkamov R.O., Saduakas A.Ye., Erkinbayev N.N.
Carotid body tumors: surgical treatment and perioperative risk factors of adverse events 30

МАЗМҰНЫ

ДИАГНОСТИКА ЖӘНЕ ЕМДЕУ

Ширтаев Б.К., Еримова Н.Ж., Сундетов М.М., Курбанов Д.Р., Халыков К.У., Акильбеков С.Д., Алханов Б.А., Көкімбаев Д.А., Каназов А.К., Баймаханов Б.Б., Чорманов А.Т.
Балалардағы антибиотиктерге төзімділік мәселелеріне заманауи көзқарас. Антибиотиктерге төзімділіктің себептері. 37

Еримова Н.Ж., Ширтаев Б.К., Баймаханов Б.Б., Чорманов А.Т., Сундетов М.М., Курбанов Д.Р., Халықов Қ.У., Көкімбаев Д.А., Алханов Б.А.
Бауыр трансплантациясынан кейінгі балалардағы цитомегаловирустық инфекцияның иммунологиялық аспектілері 42

Мусина А.Т., Қапанова Г.Ж.
Сүт безі қатерлі ісігі бар науқастарды клинникалық жүргізудегі қатерлі ісіктен қорғайтын диетотерапияны оңтайландыру (Әдебиет шолуы) 45

ОРТАЛЫҚ ТЫНЫСЫ

«Эндокард электродтарын механикалық құралдармен алып шығару» тақырыбындағы шеберлік-класс 53

«Педиатрия мен балалар хирургиясының жетістіктері мен болашағы» атты Қазақстан балалар дәрігерлерінің IX Съезінің жұмысына қатысу 54

ӘРІПТЕСТІ ЕСКЕ АЛУ

Тәжірибелік хирургияның патриархы Степанов Станислав Алексеевичті еске алу 55

Доцент Жуловчинов Марат Ұразайұлын еске алу 56

Профессор Мұқанов Марат Өмірбекұлын еске алу 57

СОДЕРЖАНИЕ

ДИАГНОСТИКА И ЛЕЧЕНИЕ

Ширтаев Б.К., Еримова Н.Ж., Сундетов М.М., Курбанов Д.Р., Халыков К.У., Акильбеков С.Д., Алханов Б.А., Кокимбаев Д.А., Каназов А.К., Баймаханов Б.Б., Чорманов А.Т.
Современный взгляд на проблему антибиотикорезистентности у детей. Причины антибиотикорезистентности 37

Еримова Н.Ж., Ширтаев Б.К., Баймаханов Б.Б., Чорманов А.Т., Сундетов М.М., Курбанов Д.Р., Халыков К.У., Кокимбаев Д.А., Алханов Б.А.
Иммунологические аспекты цитомегаловирусной инфекции у детей после трансплантации печени. 42

Мусина А.Т., Капанова Г.Ж.
Оптимизация диетотерапии онкопротективного содержания в клиническом ведении пациентов с раком молочной железы. (Обзор литературы) 45

СОБЫТИЯ ЦЕНТРА

Мастер-класс на тему: «Экстракция эндокардиальных электродов механическими инструментами». 53

Участие в работе IX Съезда детских врачей Казахстана «Достижения и перспективы развития педиатрии и детской хирургии» 54

ПАМЯТИ КОЛЛЕГИ

Памяти патриарха практической хирургии Степанова Станислава Алексеевича 55

Памяти доцента Жуловчинова Марата Уразайулы 56

Памяти профессора Муканова Марата Умирбековича 57

CONTENTS

DIAGNOSTIC AND TREATMENT

Shirtaev B.K., Yerimova N.Zh., Sundetov M.M., Kurbanov D.R., Khalykov K.U., Akilbekov S.D., Alkhanov B.A., Kokimbayev D.A., Kanazov A.K., Baimakhanov B.B., Chormanov A.T.
Modern view on the problem of antibiotic resistance in children. Causes of antibiotic resistance 37

Yerimova N.Zh., Shirtaev B.K., Baimakhanov B.B., Chormanov A.T., Sundetov M.M., Kurbanov D.R., Khalykov K.U., Kokimbayev D. A., Alkhanov B. A.
Immunological aspects of the cytomegalovirus infections after pediatric liver transplantation 42

Mussina A.T., Kapanova G.Zh.
Optimization of diet therapy of cancer-protective content in the clinical management of patients with breast cancer (Review). 45

CENTER EVENTS

Master class on the topic: “Extraction of endocardial electrodes with mechanical instruments” 53

Participation in the IX Congress of Kazakhstan Children’s Doctors “Achievements and Prospects for Pediatrics and Pediatric Surgery Development”. 54

IN MEMORY OF COLLEAGUE

In memory of the practical surgery patriarch Stepanov Stanislav Alekseevich 55

In memory of associate professor Zhulovchinov Marat Urazaiuly. 56

In memory of Professor Mukanov Marat Umirbekovich 57

GRAFT SURVIVAL RATES AFTER KIDNEY TRANSPLANTATION FROM A LIVING RELATED AND CADAVERIC DONOR

МРНТИ 76.29.46

Baimakhanov B.B. Chormanov A.T., Madadov I.K., Belgibaev E.B., Syrymov Zh.M., Dabyltaeva K.S., Nabiev E.S., Saduakas N.T., Baiyz A.Zh., Aipov B.R.
«A.N. Syzganov National Scientific Center for Surgery» JSC, Almaty, Kazakhstan

Baimakhanov B.B.
orcid.org/0000-0002-9839-6853

Chormanov A.T.
orcid.org/0000-0003-3513-1935

Madadov I.K.
orcid.org/0000-0003-2241-8603

Belgibaev E.B.
orcid.org/0000-0002-9439-2628

Syrymov Zh.M.
orcid.org/0000-0002-7708-3284

Dabyltaeva K.S.
orcid.org/0000-0003-1226-0005

Nabiev E.S.
orcid.org/0000-0002-6167-1962 S

Saduakas N.T.
orcid.org/0000-0002-5249-1783

Baiyz A.Zh.
orcid.org/0000-0002-6075-2787

Aipov B.R.
orcid.org/0000-0003-2124-0065

Corresponding author:
Madadov I. K. *– head of kidney transplantation, urogynecology and extracorporeal detoxification department, "A.N. Syzganov National Scientific Center for Surgery" JSC.*
E-mail: dominic89@mail.ru

Conflict of interest
The authors declare that they have no conflicts of interest

Keywords
kidney transplantation, graft dysfunction, related donor, kidney cadaver, survival

Abstract

Relevance. *Kidney transplantation is one of the most effective and advanced treatments for end-stage kidney disease. Despite the tremendous experience in transplantation, improvement and optimization of postoperative management and immunosuppression protocols, ultimately all this led to an increase the number of people who is in need of a kidney donor and also led to grow the "Waiting list". Only in February 2021, in the Republic of Kazakhstan, kidney transplantation was necessary for 3114 people, of which 3017 were adults and 97 children [2]. Based on this data, it is already possible to determine the high need for kidney transplantation. The lack of cadaveric organs has over time led to more frequent use of organs from living donors. The aim of this study is to determine the survival of a kidney transplant in recipients from cadaveric and living kidney donors. Based on statistics for 2018, more than 140 thousand kidney transplant operations were performed worldwide, including 95 479 kidney transplants: of which 34 549 (36%) patients were from living donors and 60 718 (64%) patients from cadaveric donor. Kidney transplantation is by far the most common operation in transplantology [3]. The demand for kidney transplantation is increasing by about 2.5-3% every year, and this growth is typical for the whole world.*

Тірі туыстық және мәйіттік донордан бүйрек трансплантациясынан кейінгі трансплантаттың өмір сүру деңгейі

Баймаханов Б.Б., Чорманов А.Т., Мададов И.К., Белгібаев Е.Б., Сырымов Ж.М., Дабылтаева Қ.С., Набиев Е.С., Садуақас Н.Т., Байыз А.Ж., Аипов Б.Р.
«А. Н. Сызғанов атындағы Ұлттық ғылыми хирургия орталығы» АҚ, Алматы қ., Қазақстан

Корреспонденция үшін автор:
Мададов И.К. *– бүйрек трансплантациясы, урогинекология және экстракорпоральді детоксикация бөлімшесінің меңгерушісі, «А.Н. Сызғанов атындағы Ұлттық ғылыми хирургия орталығы» АҚ.*
E-mail: dominic89@mail.ru

Мүдделер қақтығысы
Авторлар мүдделер қақтығысының жоқтығын мәлімдейді

Түйін сөздер
бүйрек трансплантациясы, трансплантаттың дисфункциясы, туыс донор, бүйрек кадавері, өмір сүруі

Аңдатпа

Өзектілігі. *Бүйрек трансплантациясы-бүйрек ауруының терминалдық сатысын емдеудің ең тиімді және алдыңғы қатарлы әдістерінің бірі. Трансплантацияны жүргізудің, операциядан кейінгі жүргізу мен иммуносупрессия хаттамаларын жетілдіру мен оңтайландырудың орасан зор тәжірибесіне қарамастан, сайып келгенде осының барлығы донорлық бүйрекке мұқтаждар санының өсуіне және «күту парағының»өсуіне алып келді. Тек 2021 жылдың ақпан айында Қазақстан Республикасында бүйрек трансплантациясын 3114 адам жүргізу қажет болды, оның ішінде 3017 ересек адам және 97 бала [2]. Осы мәліметтерге сүйене отырып, бүйрек трансплантациясының жоғары қажеттілігін анықтауға болады. Уақыт өте келе мәйіттің ағзаларының жетіспеушілігі ағзаларды жиі қолдануға әкелді тірі донорлардан алынған. Осы зерттеудің мақсаты - мәйіттік және тірі бүйрек донорларынан реципиенттерде бүйрек трансплантатының өмір сүруін анықтау болып табылады. 2018 жылғы статистикаға сүйенсек, бүкіл әлемде бүйрек трансплантациясы бойынша 140 мыңнан астам операция жасалды, оның ішінде 95 479 бүйрек трансплантациясы: оның ішінде 34 549 (36%) пациент тірі донорлардан және 60 718 (64%) пациент кадавер донорынан болды. Бүйрек трансплантациясы-бүгінгі таңда трансплантологиядағы ең көп таралған операция [3]. Жыл сайын бүйрек трансплантациясына деген қажеттілік шамамен 2,5-3% - ға артады және бұл өсу бүкіл әлемге тән.*

Выживаемость трансплантата после трансплантации почки от живого родственного и кадаверного донора

Баймаханов Б.Б., Чорманов А.Т., Мададов И.К., Белгибаев Е.Б., Сырымов Ж.М., Дабылтаева К.С., Набиев Е.С., Садуакас Н.Т., Байыз А.Ж., Аипов Б.Р.
АО «Национальный научный центр хирургии им. А. Н. Сызганова», г. Алматы, Казахстан

Автор для корреспонденции:
Мададов И.К. *– заведующий отделением трансплантации почек, урогинекологии и экстракорпоральной детоксикации, АО «Национальный научный центр хирургии им. А.Н. Сызганова».*
E-mail: dominic89@mail.ru

Конфликт интересов
Авторы заявляют об отсутствии конфликта интересов

Ключевые слова
Трансплантация почки, дисфункция трансплантата, родственный донор, кадавер почки, выживаемость

Аннотация

Актуальность. *Трансплантация почки - одно из наиболее эффективных и передовых методов лечения терминальной стадии заболевания почек. Несмотря на колоссальный опыт проведения трансплантации, усовершенствования и оптимизации послеоперационного ведения и протоколов иммуносупрессии, в конечном счете все это привело к тому, что возросло количество нуждающихся в донорской почке и растет «Лист ожидания».Только за февраль 2021 года, в Республике Казахстане трансплантацию почки необходимо былопровести 3114 человек, из которых 3017 взрослых и 97 детей [2]. Исходя из этих данных, уже можно определить высокую потребность в пересадке почек. Нехватка трупных органов со временем привела к более частому использованию органов взятый с живых доноров. Целью данного исследования - является определение выживаемоститрансплантата почки у реципиентов струпных и живых доноров почки. Исходя из статистики за 2018 год во всем мире было выполнено более 140 тысяч операций по трансплантации почек, в том числе 95 479 трансплантаций почек: из них 34 549 (36%) пациентов составило от живых доноров и 60 718 (64%) пациентов от трупного донора. Трансплантация почки - на сегодняшний день самая распространенная операция в трансплантологии [3]. Ежегодно потребность в трансплантации почек увеличивается примерно на 2,5-3%, и этот рост характерен для всего мира.*

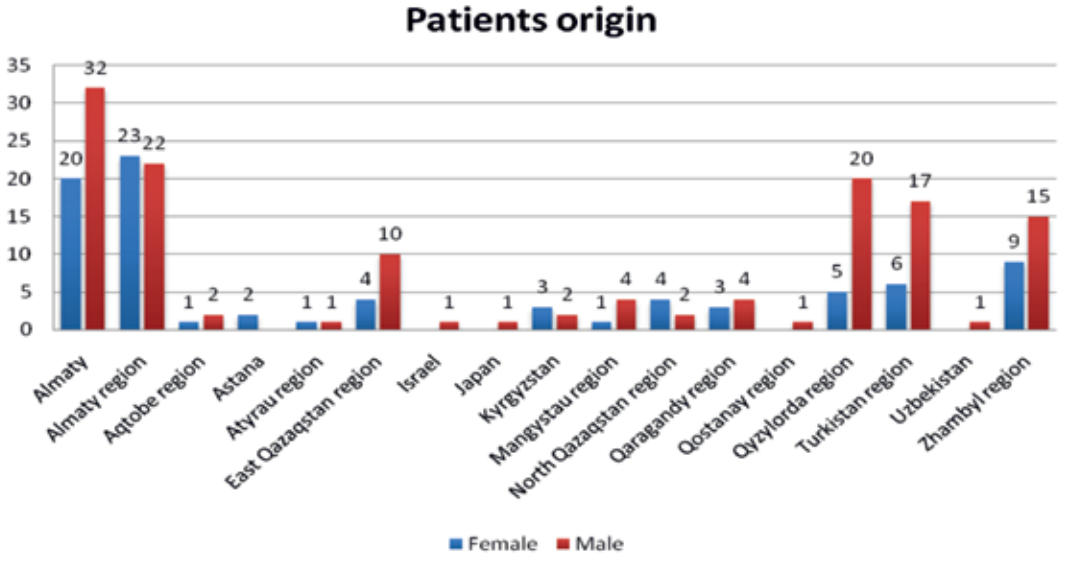
Materials and methods

To collect initial information about patients, the hospitalization database Medical Information System (MIS) and archival documents of a medical institution" of JSC "National Scientific Center of Surgery named after A.N. Syzganov" were used. A list of patients was compiled and analysis of clinical, laboratory, and instrumental data was carried out, and 217 study patients were selected, the frequency of complications and data on the survival of recipients after transplantation were analyzed.

Results

A total of 217 kidney transplants performed at the Syzganov National Research Center of Surgery from 2012 to 2018 were retrospectively analyzed. Induction was performed by Simulect and immunosuppression was performed by Tac / MMF / GKS. 217 transplants from a related donor, altruistic donors, and deceased kidney donors. 2012 - 22 patients, 2013 - 21 patients, 2014 - 28 patients, 2015 - 30 patients, 2016 -61 patients, 2017 - 40 patients, 2018 - 15 patients. Of the 217

Figure 1.
Patients origin



recipients, 155 are men and 62 are women. Of the 212 recipients, 209 patients are residents of the Republic of Kazakhstan, the remaining 8 patients are not residents of the country. The average age of patients in 2012: men - 37 years old, women - 36 years old; 2013: men - 36 years old, women - 34 years old; 2014: men - 38 years old, women - 41 years old; for 2015: men - 40 years old, women - 38 years old; 2016: men - 36 years old, women - 35 years old; for 2017: men - 33 years old, women - 35 years old; for 2018: men - 40 years old, women - 36 years old.

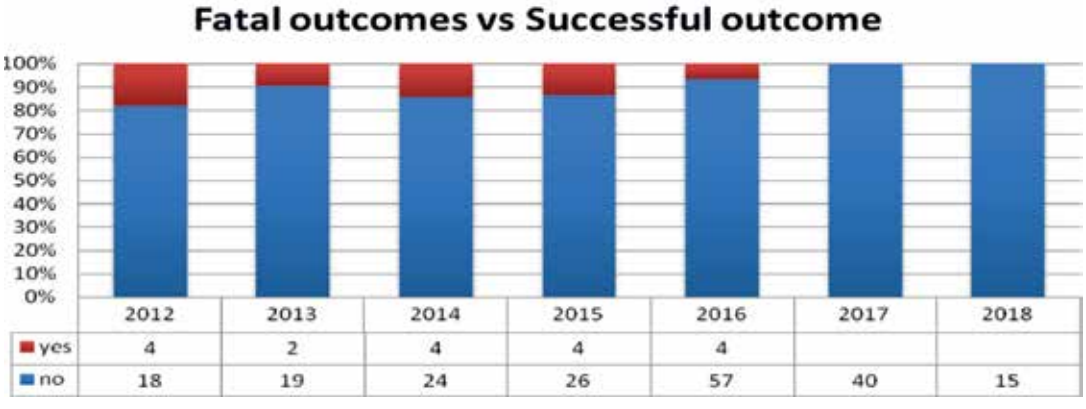


Figure 2.
Mortal outcome vs Successful outcome

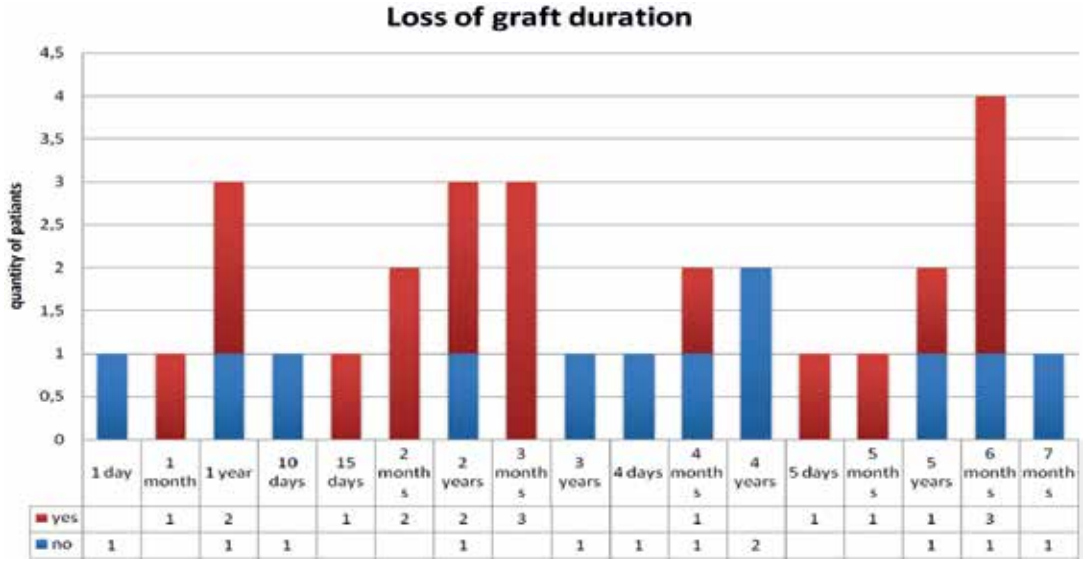


Figure 3.
Loss graft

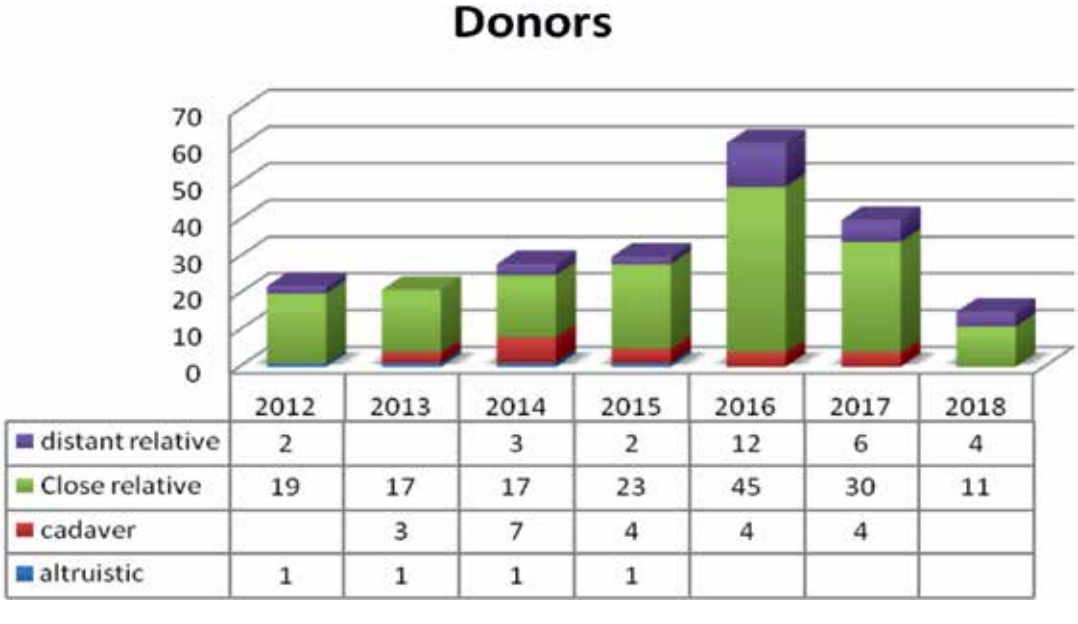


Figure 4.
Donors

Figure 5.
Initial disease

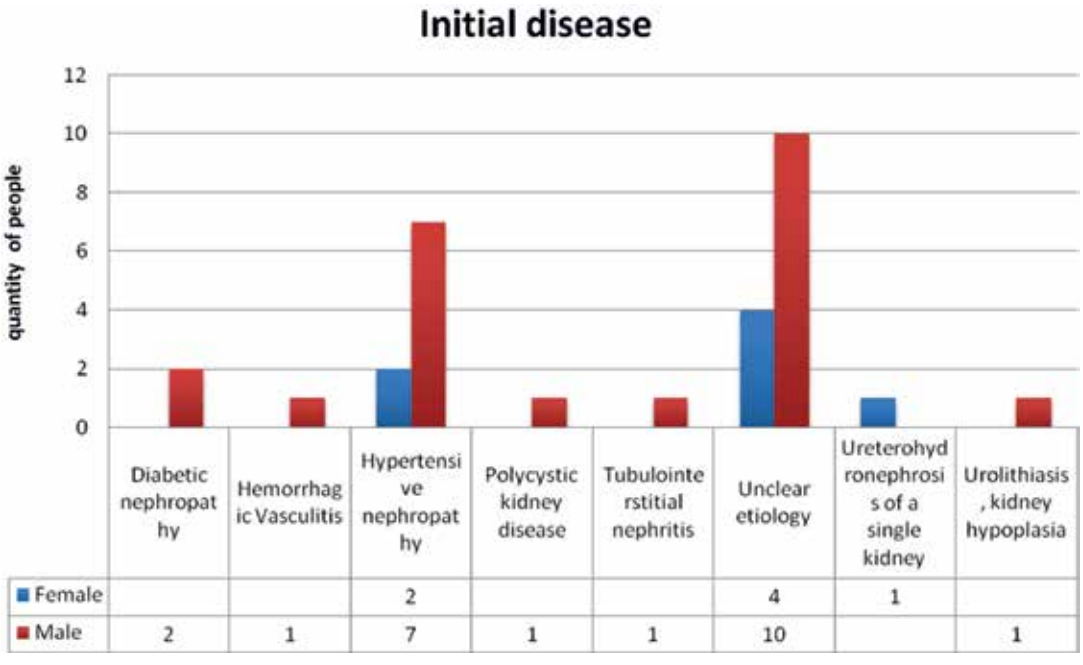
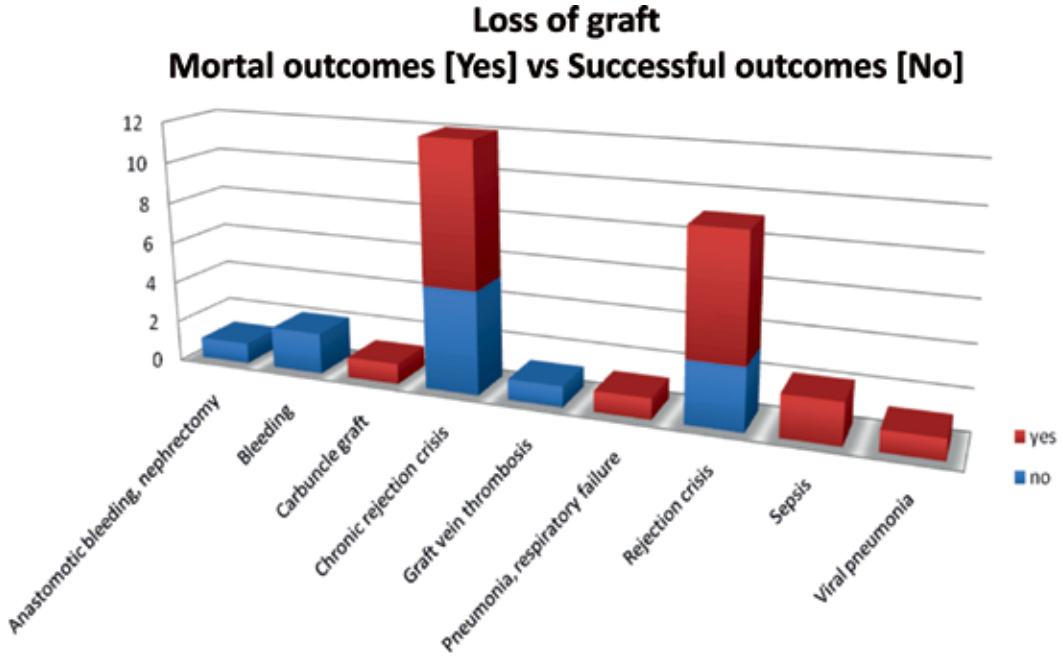


Figure 6.
Loss of graft (Mortal outcomes [Yes] vs Succsessful outcomes [No])



In 217 operated patients, a favorable outcome was observed in 187 recipients, and in 30 patients graft rejection occurred. Out of 30 transplant rejections: 18 with rejection followed by death, 12 with loss of the graft which led to maintenance hemodialysis. The reasons for the loss of the graft were: anastomotic bleeding, thrombosis of the graft veins, acute and chronic graft rejection. At the same time, a crisis of rejection was more often observed in recipients from a cadaveric donor. The time of the onset of graft dysfunction and rejection crisis varied depending on: previous illness, chronic disease, transplantation followed by transplantatectomy. kidneys in foreign countries: China, Pakistan, Belarus. The cause of 18 deaths were: sepsis, graft carbuncle, chronic rejection crisis, pneumonia with respiratory failure.

The initial disease that caused the development of the terminal stage of CRF stage 5 in 30 patients: diabetic nephropathy, hemorrhagic vasculitis, hypertensive nephropathy, polycystic kidney disease, tubulointerstitial nephropathy, ureterohydronephrosis of a single kidney, urolithiasis with renal hypoplasia, and diseases of unclear etiology.

Conclusions

9-year kidney transplant survival rate in 2012 was 80 %. The survival rate of a graft from a living related

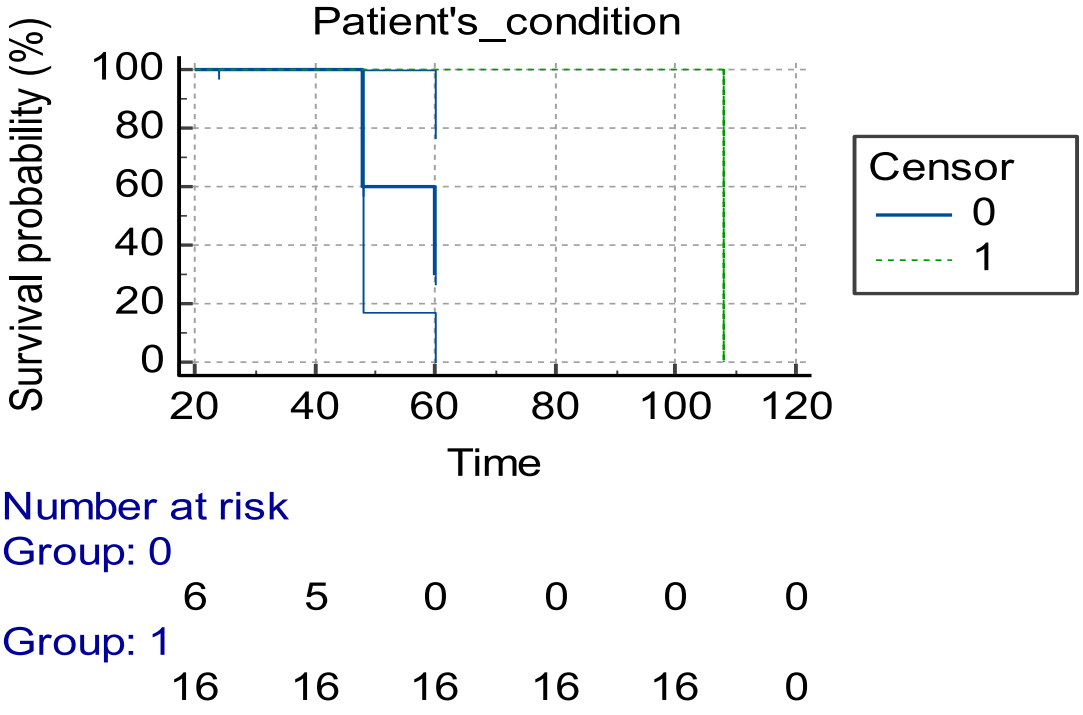


Figure 7.
Patient's condition

donor and a cadaver kidney at the initial stages is identical but on average from a living related donor 15-20 years, and for a cadaver kidney 5-7 years, however, these figures can vary depending on the time of cold ischemia, histocompatibility parameters, age the recipient and depends on the ongoing immunosuppressive therapy. The highest long-term graft survival is observed when the donor and recipient are completely identical in HLA and the survival rate is 25 years or more, and with identical only one HLA haplotype, it is 10-15 years, however, in the cadaver kidney, the most important is the correspondence of histocompatibility and the time of cold ischemia of the kidney. These indicators are directly proportional to predictors of long-term graft loss, what confirms the previous works. [4] [5] [6] [7] [8] [9] [10].

References

1. L Guirado 1, E Vela, M Clèries, J M Díaz, C Facundo, R García-Maset, Registro de enfermos renales de Cataluca (RMRC) L Guirado 1, E Vela, M Clиries, J M Díaz, C Facundo, R García-Maset, Registro de enfermos renales de Cataluña (RMRC)- Why renal transplant from living donors gives better results than cadaver renal transplant
2. Lamb KE, Lodhi S, Meier-Kriesche HU. Long-term renal allograft survival in the United States: A critical reappraisal. Am J Transplant 2011
3. "Republican Center for the Coordination of Transplantation and High-Tech Services" of the Ministry of Health of the Republic of Kazakhstan
4. Courtenay M Holscher 1, Tanveen Ishaque 1, Jacqueline M Garonzik Wang 1, Christine E Haugen 1, Sandra R DiBrito 1, Kyle R Jackson 1, Abimereki D Muzaale 1, Allan B Massie 1 2, Fawaz Al Ammary 3, Shane E Ottman 1, Macey L Henderson 1, Dorry L Segev 1 2 4 -Living donor postnephrectomy kidney function and recipient graft loss: A dose-response relationship.Am J Transplant. 2018
5. J Sellarйs 1, D G de Freitas, M Mengel, J Reeve, G Einecke, B Sis, L G Hidalgo, K Famulski, A Matas, P F Halloran-Understanding the causes of kidney transplant failure: the dominant role of antibody-mediated rejection and nonadherence. Am J Transplant 2012
6. Karime Osorio-Arango 1, Mauricio Beltrán-Durán, Yazmín Arias-Murillo, Franklyn Prieto, Adriana Robayo-[Survival in renal transplant recipients in Colombia, 2008-2012]. 2017
7. Department of Surgery, National Taiwan University Hospital and National Taiwan University College of Medicine, Taipei, Taiwan. Prognostic factors for renal transplant graft survival in a retrospective cohort of 1000 cases: The role of desensitization therapy 2020 Apr;119(4):829-837
8. Department of Immunology, Transplantology and Internal Diseases, Medical University of Warsaw, Warsaw, Poland. Long-term outcome of renal transplantation: a 10-year follow-up of 765 recipients 2019 Aug 29;129(7-8):476-483
9. Ted Rogers Centre for Heart Research, Multi-Organ Transplant Program, Toronto General Hospital, University Health Network, Toronto, Ontario, Canada; Risk Factors for 1-Year Graft Loss After Kidney Transplantation: Systematic Review and Meta-Analysis 2019 Nov 7;14(11):1642-1650.
10. Paris Translational Research Center for Organ Transplantation, National Institute of Health and Medical Research, UMR-S970, Paris, France; Paris Descartes University and Hфpital Necker, Subclinical Rejection Phenotypes at 1 Year Post-Transplant and Outcome of Kidney Allografts 2015 Jul;26(7):1721-31.

МРНТИ 76.29.39

LONG-TERM CONSEQUENCES OF THE HAND SOFT TISSUE INJURIES. (REVIEW)

Baimakhanov B.B.
orcid.org/0000-0003-0049-5886

Nabiev E.N.
orcid.org/0000-0002-1532-8151

Kazantayev K.E.
orcid.org/0000-0002-3566-8719

Turdalieva B.C.
orcid.org/0000-0003-4111-6440

Mukhamedkerim K.B.
orcid.org/0000-0002-4343-0743

Muradov M.I.
orcid.org/0000-0002-9168-8618

Koshkarbayev D. Zh.
orcid.org/0000-0001-8158-1334

Corresponding author:
Kazantayev K.E. – *1st year PhD student at "Asfendiyarov Kazakh National Medical University" NC JSC.*
E-mail: kimbasx@mail.ru

Conflict of interest
The authors declare that they have no conflicts of interest

Keywords
hand surgery, trauma consequences, hand tissue defects, microsurgery

Baimakhanov B.B.[1], Nabiev E.N.[2], Kazantayev K.E.[2], Turdalieva B.C.[3], Mukhamedkerim K.B.[3], Muradov M.I.[1], Koshkarbayev D.Zh.[1]
[1]«A.N. Syzganov National Scientific Center for Surgery» JSC, Almaty, Kazakhstan
[2]«Asfendiyarov Kazakh National Medical University» NC JSC, Almaty, Kazakhstan
[3]«Kazakh Medical University of Continuing Education» JSC, Almaty, Kazakhstan

Abstract

Today hand surgery is of more concern to many surgeons, due to in everyday practice, issues related to upper limb injuries and their consequences require solving practical problems, a professional approach, microsurgical skills.

The aim of this work is to analyze the literature data on hand injuries consequences and hand tissue defects.

Material and methods. *We conducted a systematic search of literature data and selected sources from the databases of Cochrane, Google Scholar, PubMed, Elibrary, as well as research papers and educational online publications in English, Russian and Kazakh. Forty papers were included that met the inclusion criteria.*

Results. *The review article describes the causes of hand injuries consequences, as well as the treatment of this pathological condition.*

Conclusions. *Thus, today there is a tendency towards an increase in the consequences of upperlimbs tendons injuries, there are a number of reasons contributing to this: the territorial peculiarity of our Republic, low awareness about the existence of hand surgery among the population. After analyzing of reviewed information, we came to the conclusion that even at the initial visit, patients with hand tendon injuries should receive specialized care.*

Қолдың жұмсақ тіндері жарақаттарының алшақ салдары. (Әдебиет шолуы)

Корреспонденция үшін автор:
Қазантаев Қ.Е. – *«С.Ж. Асфендияров атындағы Қазақ Ұлттық медициналық университеті» КеАҚ, 1 курс докторанты.*
E-mail: kimbasx@mail.ru.

Мүдделер қақтығысы
Авторлар мүдделер қақтығысының жоқтығын мәлімдейді

Түйін сөздер
қол хирургиясы, жарақат салдары, қол тіндерінің ақаулары, микрохирургия

Баймаханов Б.Б.[1], Набиев Е.Н.[2], Қазантаев Қ.Е.[2], Турдалиева Б.С.[3], Мухамедкерим Қ.Б.[3], Мурадов М.И.[1], Қошкарбаев Д.Ж.[1]
[1]«А.Н. Сызғанов атындағы Ұлттық ғылыми хирургия орталығы» АҚ, Алматы қ., Қазақстан
[2]«С.Ж. Асфендияров атындағы Қазақ Ұлттық медицина университеті» КеАҚ, Алматы қ., Қазақстан
[3]«Қазақ медициналық үздіксіз білім беру университеті» АҚ, Алматы қ., Қазақстан

Аңдатпа

Бүгінгі таңда қол хирургиясына көптеген хирургтар қызығушылық танытады, өйткені күнделікті практикалық қызметтегі қолдың жарақаттарына және олардың салдарына байланысты мәселелер кәсіби тәсілдерді, микрохирургиялық дағдыларды, практикалық мәселелердің шешімін талап етеді.

Жұмыстың мақсаты *- қол жарақаттары мен қол тіндері ақауларының салдары туралы әдеби мәліметтерді талдау.*

Материал және әдістер. *Біз Cochrane, Google Scholar, PubMed, Elibrary мәліметтер базасынан, сондай-ақ зерттеу жұмыстарынан және ағылшын, орыс және қазақ тілдеріндегі онлайн оқу-әдістемелік онлайн басылымдардан әдеби мәліметтерге жүйелік іздеу жүргізіп, дереккөздерді іріктеп алдық. Қосу критерийлеріне сәйкес келетін қырық жұмыс іріктелді.*

Нәтижелер. *Шолу мақаласында қол буыны жарақаттарының салдарының туындау себептері, сондай-ақ осы патологиялық жағдайды емдеу жолдары сипатталған.*

Қорытынды. *Осылайша, бүгінгі таңда қол сіңірлері жарақаттарының салдарларының өсу тенденциясы байқалады, бұған бірқатар себептер әсер етеді: біздің республикамыздың аумақтық ерекшелігі, тұрғындардың қол буыны хирургиясы туралы жеткіліксіз деңгейде хабардар болуы. Біз қаралған мәліметтерді талдай отырып, қол сіңірлерінің жарақаттары бар науқастар дәрігерге бастапқы жүгіну кезінде оларға мамандандырылған көмек көрсетілуі керек деген қорытындыға келдік.*

Отдаленные последствия травм мягких тканей кисти. (Обзор литературы)

Баймаханов Б.Б.[1], Набиев Е.Н.[2], Казантаев К.Е.[2], Турдалиева Б.С.[3], Мухамедкерим К.Б.[3], Мурадов М.И.[1], Кошкарбаев Д.Ж.[1]
[1]АО «Национальный научный центр хирургии им. А.Н. Сызганова», г. Алматы, Казахстан
[2]НАО «Казахский Национальный медицинский университет имени С.Д. Асфендиярова», г. Алматы, Казахстан
[3]АО «Казахский медицинский университет непрерывного образования», г. Алматы, Казахстан

Автор для корреспонденции:
Казантаев К.Е. *– докторант 1-курса НАО «Казахский Национальный Медицинский Университет им. С.Д. Асфендиярова».*
E-mail: kimbasx@mail.ru

Конфликт интересов
Авторы заявляют об отсутствии конфликта интересов

Аннотация

Хирургия кисти, на сегодняшний день, вызывает интерес у многих хирургов, так как в повседневной практической деятельности, вопросы касающиеся травм верхних конечностей и их последствии, которые требуют решение практических проблем, профессионального подхода, микрохирургических навыков.

Целью данной работы *является анализ литературных данных на тему последствий травм кисти и дефектами тканей кисти.*

Материал и методы. *Мы провели систематический поиск литературных данных и отобрали источники из базах данных Кокрейна, Google Scholar, PubMed, Elibrary а также исследовательские работы и учебные онлайн-издания на английском, русском и казахском языках. Были включены сорок работ, которые удовлетворяли критериям включения.*

Результаты. *В обзорной статье приведены причины возникновения последствий травм кисти, а также лечение данного патологического состояния.*

Выводы. *Таким образом, на сегодняшний день отмечается тенденция роста последствий травм сухожилий верхних конечностей, имеются ряд причин способствующих этому: территориальная особенность нашей Республики, низкая осведомленность среди населения о существовании хирургии кисти. После анализа просмотренной информации мы пришли к выводу, что еще на первичном обращении пациенты с травмами сухожилий кисти должны получить специализированную помощь.*

Ключевые слова
хирургия кисти, последствия травм, дефекты тканей кисти, микрохирургия

The human hand, as an executive organ, is at the center of daily activities in various professions and in sports. And due to its prominent position, the hand is always prone to injury and overuse.

Even with the society changing from an industrial society to a service-based society, surprisingly, the supposed reduction in hand injuries has never happened [1].

The aim of this work is to analyze the literature data on the consequences of hand injuries and hand tissue defects.

Materials and methods

We conducted a systematic search of literature data and selected sources from the databases of Cochrane, Google Scholar, PubMed, Elibrary, as well as research papers and educational online publications in English and Russian, Kazakh. Twenty papers were included that met the inclusion criteria.

Inclusion criteria

We included 30 sources that met our inclusion criteria: studies that were conducted in patients with the sequelae of hand injuries, sources published no later than 10 years.

Validation and Data Extraction

We evaluated a sample of 10 sources in which attention was paid to the consequences of hand injuries and from 20 sources on hand tissue defects. The articles were analyzed in a random order based on key aspects. Data elements taken for this article included: study design, sampling method, number of patients and operations performed, definition of outcome, clinical observations, review articles.

Results

According to foreign authors, on the basis of 50,272 injured[2].

28.6% of patients receiving emergency care were patients with a hand injury. On average, hand injuries account for 14% to 30% of all emergency patients.

Tendon injuries are in 2nd place (29%), while fractures are in 1st place (42%), and skin lesions are in 3rd place among all patients treated for hand injuries. Although only 2% of patients are hospitalized, hand injuries, especially tendon injuries, play a key role in orthopedic and traumatic management.

Based on the analysis of the situation carried out by the authors and M.I. Muradov on the basis of JSC “A.N. Syzganov National Scientific Center for Surgery “[2,3,4] in the department of reconstructive-plastic and aesthetic microsurgery, which has the status of Republican significance, which facilitated the referral of patients from all regions of the country.

On average, 420 patients are operated on the hand tendon injuries consequences annually, and the following organizational, diagnostic, tactical and technical mistakes were made in the primary treatment of patients with hand injury:

I) Late referral of patients to a specialized hospital
II) Lack of microsurgical techniques in the primary restoration of the anatomical structures of the hand;
III) Application of inappropriate suture material;
IV) Failure to comply with the rules of surgical approaches to the hand and inadequate skin grafting;
V) Immobilization of the hand and fingers in a functionally disadvantageous position.

All this explained the long periods of incapacity and the high level of disability with fingerinjuries.

At the same time, a discrepancy was revealed between the territorial remoteness of cities from the Center. The time from injury to hospitalization ranged from 2 weeks to 12 years. This indicates a low awareness of doctors about the need to treat this group of patients in a specialized departments [5,6,7].

Today, specialists working in hand and plastic surgery field are convinced that plastic surgery with a fullflap or split skingraft is indicated in cases where there is superficial damage to the hand and fingers without exposing functionally important anatomical structures [8,9,10,11]. A prerequisite for free skin grafting is a good blood supply to the recipient bed, well-supplied fiber, or healthy granulation. Even if these conditions are met, failures are frequent - partial and complete necrosis of skin grafts [12, 13]. A free skin graft is not uncommon, it also grows together with the underlying tissues, scleroses, becomes thinner, and easily ulcerates. Also, its area decreases, especially on the palmar surface of the hand, which leads to flexion contractures of the hand and fingers. The scar tissue formed after deep burns grows together directly with the bones of the phalanges and their articular surfaces. In such conditions, split or full-thickness skin grafts do not take root well, but even with successful plastic surgery, a skin resistant to injury is not created. In addition, they cannot cover tendons, nerves, joints [14,15]. Also, at the height of retraction, the area of the graft can be halved. Recovery of sensitivity on a free skin graft is unpredictable and never occurs to a satisfactory level [15].A large number of methods of plastic surgery on the hand with local tissues are known, which do not require immobilization and use the skin with the closest properties. Here, flaps on wide bases and on neurovascular pedicles from areas close to the defect are possible. The first includes flaps from the elevation of 1 finger in various modifications, which are used when it is necessary to close at the tip of one finger or amputation wound on the stump. For the repair of defects on the palmar surface of the fingers, cross-repair with flaps from the dorsum ofthe adjacent finger is successfully used. Local flaps on the neurovascular pedicle, in contrast to “arbitrary”, guarantee blood supply and innervation. These flaps are larger in size, sensitive, mobile, and therefore are used most often to eliminate defects and restore sensitivity on the supporting surfaces of the thumb and index finger. Obviously, local plastic surgery of the hand is possible only with small hand defects, mainly on the fingers, and causes some damage to an already damaged hand. Extensive exposure of tendons, nerves, bones, joints of the hand as a result of trauma or excision of scars requires plasty with a blood-supplied flap containing subcutaneous tissue. The choice of a flap for plasty of defects on the hand depends on the shape, localization, depth of the defect, but, as a rule, it is limited to different variantsof the Italian and Filatov flap. As a donor site for a pedicle flap, the skin of the anterior surface of the chest or anterior abdominal wall is most often used. Cutting out flaps on a pedicle on an intact arm has its advantages due to the thinner skin, its high capacity for functional restructuring, however, the inconveniences associated with the patient’s position and his emotional state, significantly limit the use of this modification [16].The overwhelming majority of specialists in hand surgery consider the use of a sharp Filatov stem as the method of choice for scalped wounds of the fingers. Bur’yanov A.A. et al. [17] negatively assess the cosmetic effect of stem plasty and recommend making «pocket plasty» with full scalping of one finger. Pocket plastic and plastic with double flaps are shown when scalping several fingers and scalping the hand in a “glove” manner. Modifications of flaps with closed pedicle flaps have been proposed. Known “funnel-shaped flap”, pedicle flap taken under the mammary gland [18]. They combine the features of flap and pocket plastics. The feasibility of cutting out flaps in women under the mammary gland is questionable both from a cosmetic point of view and in connection with possible complications. According to O.N. Milanov, an indication for plastic surgery with a “sharp” Filatov stem is a circular defect in the soft tissues of the fingers, for plastic surgery according to Holevich - skin defects on the dorsum or palmar surface of the hand, as well as the stump of the hands during amputation of fingers. «Pocket plastic» was used for circular defects of the finger skin and for the so-called glove type injuries of the hand. The author noted that while using this plasty, difficulties arise when closing the abdominal wound (for plastic purposes, the abdominal skin was mainly used) and the formation of the

skin on the hand after its separation, especially with extensive defects. The terms of treatment increased due to additional plastic interventions. The use of pedicle flaps is indicated to preserve the length and function of 1 finger in cases of soft tissue necrosis of this finger. Some authors have obtained positive results when using non-free skin grafting for the treatment of osteomelitis of the hand and fingers [19].Italian and round stems are mobilized without taking into account the course of skin vessels, which, as a rule, do not contain the main artery and nerve. These factors cause a large number (36-45%) of various complications, including suppuration, osteomyelitis, trophic ulcers of the grafts. A.A. Gritsyuk and S.N. Rybakov noted complications with non-free skin grafting in 28.8%, of which partial necrosis - 15.8%, marginal necrosis - in 9.5% and suppuration - in 3.5%. Extensive and total necrosis was not observed. The degree of blood circulation and innervation of these flaps does not reach the normal level inherent in the skin of the hand, and the restoration of such sensitivity can be expected from 6 months to 2 years after surgery [20]. The disadvantages associated with reduced blood circulation in a flap taken without taking into account the course of skin vessels (the so-called "arbitrary" flap) do not have flaps based on permanent cutaneous arterial lines, such as the superficial epigastric artery, the superficial artery that envelopes the iliac bone, superficial pudendal artery [21]. The introduction of the microsurgical method in the restoration, reconstruction and plastics of the hand with the use of flap surgery remains the method of choice. For more than 10 years, the transplantation of tissue complexes has made it possible to eliminate tissue defects in a short time, restoring the normal layer-by-layer structure of the injured area, with full functional and cosmetic rehabilitation. In recent years, in the treatment of injuries of the musculoskeletal system, the method of autotransplantation of vascularized tissues, which is used to replace the skin, muscles, and bone, has become increasingly widespread. Such "microvascular" flaps have high vascularization, and their simultaneous transplantation allows replacing defects regardless of the location, size and nature of the lesion. Combined microvascular grafts are successfully used in clinical practice, which make it possible to close large defects in the area and depth of the lesion. However, the exceptional technical complexity, requiring special equipment and training of surgeons, the considerable duration and severity of the operation for the patient, significantly limit the application of this method. There is a high risk of secondary deformation of the donor area and postoperative thrombosis with subsequent flap necrosis [22].N.S. Niranjan, with considerable experience in free transplanting, warns against often overlooked shortcomings. There is always a danger of death of the transplanted tissue ("all or nothing"). These operations are time-consuming, labor-intensive and can be performed with two specialized teams of surgeons and well-equipped centers. At the Atlanta Medical Center, the largest medical institution in the United States with a high-class microsurgical service, D. Fasano reviewed the clinical material. It was reported that serious complications during plastic surgery with vascularized flaps were observed in 43.1% of patients after microsurgical operations. Complete flap loss was 13.3% of cases; partial - in 6.9% of cases. In 5.2%, complications were noted in the donor area (most often, suppuration, sub-flap hematomas).A.E. Belousov reports various complications in 25 out of 82 patients (30.4%) during transplantation with free complex-composite flaps on microvascular anastomoses, and a complete failure of transplantation of 7 (8%) grafts out of 87. Autotransplantation of blood-supplied tissues is considered indicated only when a specific the surgical task cannot be solved effectively enough in another, simpler way. The most common use in hand surgery is the use of a radial flap. The radial artery, which forms a deep palmar arch on the hand, is located in the lateral intermuscular septum between mm. brachioradialis and flexor carpi radialis, giving off 9–17 branches along their course, going to the fascia of the forearm. Most of the branches extend from the radial artery in the distal third of the forearm. These numerous branches form a dense fascial network that provides perfusion to the entire forearm skin. In view of this, the forearm flap is skin-facies. In addition to the radial artery, which is the main source of blood supply to the skin of the forearm, perfusion is provided by the ulnar artery, anterior and posterior interosseous arteries. According to a clinical study performed by Kerawala, the mean arterial return pressure in the distal part of the radial artery is 40 mm Hg. Thus, after the flapsampling, the blood supply to the hand does not suffer, however, rare cases of ischemia of the hand after grafting the flap or due to vascular anomalies: duplication of the radial artery and others have been described [23].A large number of unnamed branches of the radial artery to the skin, muscles and periosteum make it possible to perform flap grafting of various designs. Transposition of the entire skin of the forearm on the vascular pedicle, represented only by the radial artery, is possible, for example, during amputation of the upper limb. Song and Gao note that all cutaneous branches run along the fascia of the forearm, and most of them in the distal forearm run between mm. brachioradialis and flexor carpi radialis. In view of this, the fascia can be included in the composi-

tion of the flap along its lower surface. Bone nutrition is provided by periosteal and directly bone branches, perforating m. flexor pollicis longus and anastomosed with the medullary vascular system. Venous outflow from the forearm flap is provided by the deep radial vein or superficial veins, which form many anastomoses with each other. Due to the many variations in the anatomy of the deep and superficial veins, the decision about which vein should be included in the vascular pedicle is an individual decision. Although the diameter of the superficial veins is large enough, which greatly facilitates anastomosis, with a small area of the skin cushion, as well as in cases of hidden damage to the intima of the vessel (for example, with repeated catheterizations of the forearm veins and intravenous infusions), the use of these veins is undesirable.When examining the volume of blood flow using Doppler sonography, it was found that during flap transplantation, the outflow through the deep veins is significantly greater. Despite the presence of valves in both the superficial and deep veins, retrograde blood flow is possible due to the numerous intermediate veins, which makes it possible to harvest the flap on the distal vascular pedicle, which can be very useful in closing hand defects. The radial flap is thin, flexible and mostly hairless. The skin-facies arrangement allows it to be used when replacing hand defects. Large vascular diameter (artery 2-3 mm, v. Cephalica - 3-4 mm, deep veins - 1-3 mm), long vascular pedicle and many options for flap perfusion (ortho- or retrograde, venous outflow along superficial or deep veins) greatly facilitate the work of the surgeon. During the reconstruction of head and neck regiondefects, for example, during resection of a tumor of this localization, it is possible to simultaneously harvest the flap by the second surgical team, which significantly reduces the duration of the surgical intervention. In addition to these advantages, it is necessary to point out the disadvantages of the flap. Since grafting of the flap implies a complete cessation of blood flow in the distal segment of the radial artery, the blood supply to the hand is provided only by the ulnar artery and the remaining anterior and posterior interosseous branches. In a study of 750 corpses, it was found that the radial and ulnar arteries were present in all cases, and the blood supply to the hand was mainly provided by the ulnar artery ending in the superficial palmar arch.Despite this, in some cases, blood supply to the thumb and index fingers can be provided only by the radial artery: for example, in the absence of branches to these fingers from the superficial palmar arch (option 1) or in the absence of anastomosis between the superficial and deep palmar arch (option 2). In order to prevent the development of postoperative ischemia of the hand, it is necessary to perform the Allen test, or, in doubt, an angiographic study. Porter described a case of the absence of the radial artery, when the blood supply to the forearm is provided by the codominant median and ulnar arteries. A significant disadvantage is the appearance of the donor site after the graft harvest. The patient often has to avoid wearing short sleeves for aesthetic reasons. There is a fairly large number of publications that report a 30–50% incidence of complications at the donor site, most of which are necrosis of a split skin autograft [24]. To reduce the morbidity of the donor site, a large number of techniques have been proposed that make it possible to perform the primary closure of the donorarea: VY-shaped plastic surgery, plastic surgery with local flaps, and the use of expanders. To improve the properties of the skin autograft, McGregor suggested immobilizing the limb in the wrist extension position for 20 days. In addition to problems with the healing of the donor site, there are other complications such as edema, decreased grip strength, limited extension in the wrist joint, decreased sensitivity due to damage to the branches of the radial nerve, and decreased cold tolerance. Despite the fact that the flap is traditionally considered the “workhorse” of reconstructive hand surgery, the listed disadvantages limit its scope and may persuade both the surgeon and the patient to choose another flap. Alternative methods with less morbidity of the donor site, for example, perforating flaps, can be successfully used for the reconstruction of soft tissue defects with practically the same indications as for the radial forearm flap.

Conclusion

The introduction of microsurgery methods into clinical practice has significantly expanded the possibilities of organ-saving therapeutic tactics, opened up real prospects for reducing the level of disability among this large and socially significant group of patients [25]. At the same time, hand injuries tend to increase in severity, taking on the nature of multiple and combined [26,27,28]. In this regard, complex tactical issues arise related to the contradictions between the desire for the most complete restoration of all damaged structures and a critical assessment of the functional prospects of the restored fingers and hand as a whole [29,30].

After analyzing the reviewed information, we came to the conclusion that the increased requirements for the quality of life, the tendency to an increase in the frequency of multiple, combined injuries of the hand, dictate the need to search for new methods, revise and improve existing organizational approaches and microsurgical treatment of this category of patients.

References

1. Angermann P, Lohmann M. Injuries to the hand and wrist. A study of 50,272 injuries. J Hand Surg Br. 1993 Oct;18(5):642-4. doi: 10.1016/0266-7681(93)90024-a. PMID: 8294834.
2. Howell, J. W., Merritt, W. H., Robinson, S. J.: Immediate controlled active motion following zone 4–7 extensor repair. J. Hand Ther. 2005, 18, 182–190.
3. Muradov M.I., Muhamedkerim K.B., Sadykov T.A. Analiz sostojanija hirurgii kisti v Kazahstane. [Muradov M.I., Mukhamedkerim K.B., Sadykov T.A. Analysis of the state of hand surgery in Kazakhstan] Bulletin of Surgery of Kazakhstan. 2015. No. 1. Pages 53-56. (in Russian)
4. Cuadra, A., Correa, G., Roa, R., et al.: Functional results of burned hands treated with Integra. J. Plast. Reconstr. Aesthet. Surg., 2012, 65, 228–234.
5. Rashid M., Hussain S.S., Aslam R., etal. Acomparison of two fasciocutaneous flapin the reconstruction of defects of the weight-bearingheel // J. Coll. PhysiciansSurg. Pac. - 2003. - Vol.13., №4. - P. 216-218.
6. Weigert, R., Choughri, H., Casoli, V.: Management of severe hand wounds with Integra® dermal regeneration template. J. Hand Surg. Eur., 2011, 36, 185–193. 5. Komarov A.S.,
7. Amornvit P, Rokaya D, Keawcharoen K, Raucharernporn S, Thongpulsawasdi N. One- vs two stage surgery technique for implant placement in finger prosthesis // J ClinDiagn Res. – 2013. - №7(9). – P. 1956-1968.
8. Munenchi J. Nonmicrosurgical replantation using a subcutaneous pocket for salvage of the amputated fingertip // J. Hand Surg. - 2005. - Vol. 30., №3. - P. 562-565.
9. Marec C.A., Pu L.L. Refinements of free tissue transfer for optimal outcome in lower extremity reconstruction // Ann.Plast. Surg. - 2004. - Vol. 52., №3. - P. 270-275.
10. Landin L. Transplantation and surgery of the hand // Ann Plast Surg. – 2014. - №72(1). - P. 1-6.
11. Khandwala, A. R., Webb, J., Harris, S. B., et al.: A comparison of dynamic extension splinting and controlled active mobilization of complete divisions of extensor tendons in zones 5 and 6. J.Hand Surg. Eur., 2000, 25, 140–146.
12. Ivanov V.E., Prusakov V.A., Pinskij G.S. Kontrol' zhiznesposobnosti mikrohirurgicheskih autotransplantatov v rannem posleoperacionnom periode. [Ivanov V.E., Prusakov V.A., Pinsky G.S. Monitoring the viability of microsurgical autografts in the early postoperative period]// MRZh. - 1990. - No. 4. - S. 19-26. (in Russian)
13. Musharafieh R., Atiyeh B., Macari G et al. Radial forearm fasciocutaneous free-tissue transfer in ankle and foot reconstruction: review of 17 cases // J. Reconstr. Microsurg. - 2001. – Vol.17., №3. - P. 147-150.
14. Lineaweaver W., Huik K., Jim K. et al The role of the plastic surgeon in the management of surgical infection // Plast.Reconstr. Surg. – 1999. - Vol.103. - P.1553-1561.
15. Bíró, V.: The application of the dynamic splinting in the postop- erative rehabilitation of extensor tendon injuries. [Dinamikus sínezés alkalmazása a feszítőín-sérülések posztoperatív rehabilitációjában.] Rehabilitáció, 2013. In press. [in Hungarian]
16. Brown, J. M., Tung, T. H., Mackinnon, S. E.: Median to radial nerve transfer to restore wrist and finger extension: technical nuances. Neurosurgery, 2010, 66 (Suppl. 3), 75–83.
17. Amornvit P, Rokaya D, Keawcharoen K, Raucharernporn S, Thongpulsawasdi N. One- vs two stage surgery technique for implant placement in finger prosthesis // J ClinDiagn Res. – 2013. - №7(9). – P. 1956-1968.
18. Bertelli, J. A., Ghizoni, M. F.: Very distal sensory nerve transfers in high median nerve lesions. J. Hand Surg. Am., 2011, 36, 387–393.
19. Thordarson D.B. Congenital crossover fifth toe correction with soft tissue release and cutaneous Z-plasty // Foot. Ancle.Int. - 2001. - Vol. 22, №6. - P. 511-512.
20. Breidenbach, W. C., Tobin, G. R., Gorantla, V. S., et al.: A position statement in support of hand transplantation. J. Hand Surg. Am., 2002, 27, 760–770.
21. Weir R., HeckathorneC., Childress D. Cineplasty as a control input for externally powered prosthetic components // J.Rehabil. Res. Dev. - 2001. - Vol.38., №4. - P. 357-363.
22. Edgell, S. E., McCabe, S. J., Breidenbach, W. C., et al.: Different reference frames can lead to different hand transplantation decisions by patients and physicians. J. Hand Surg. Am., 2001, 26, 196–200.
23. Dubernard, J. M., Owen, E., Herzberg, G., et al.: Human hand allograft: report on first 6 months. Lancet, 1999, 353, 1315–1320
24. LovettW. L., McCallu M. Nerve Injuries: Management and Rehabilitation // Orthop. Clin. North Am. - 1983. - Vol. 14, №4. -P. 767- 778.
25. Leddy J.P. Flexor Tendon - Acute Injuries // Operative Hand Surgery. - Churchill Livingstone: 1993. - P. 1823-1851.
26. Bíró, V.: Recent viewpoints in postoperative rehabilitation of the flexor tendon injuries of the hand. [Újabb szempontok a kézhajlítóin-sérüléseinek posztoperatív gyógytornakezelésében.] Rehabilitáció, 2012, 22, 8–15. [in Hungarian]
27. Saratov Journal of Medical Scientific Research. 2009. Vol.5. № 3. O.V. Beidik., A.V. Zaretskov., M.A. Shcerbakov. Surgical treatment of patients with multitrauma of fingers, 407p.
28. Adolfsson L., Soderberg G., Larsson M., Karlander L. E. The effects of a shortened postoperative mobilization programme after flexor tendon repair in zone 2 // J. Hand Surg. - 1996. - Vol. 21 B, №1. - P. 67-71.
29. S. Coppolino, F. Lupo, F. Quatra, M. R. Colonna, T. Merrino, F. Ruggeri, G. Risitano. Surgery and rehabilitation of flexor tendons injuries in zone 1 and 2. Minerva Chir. 2003. Feb. №58(1):P. 93-96.
30. Alderman AK, Collins ED, Streu R, et al. Benchmarking outcomes in plastic surgery: national complication rates for abdominoplasty and breast augmentation. Plastic and Reconstructive Surgery. 2009 Dec;124(6):2127-2133. DOI: 10.1097/prs.0b013e3181bf8378.

МРНТИ 76.29.39

A CLINICAL CASE OF AN ECHINOCOCCAL MEDIASTINAL CYST WITH A BREAKTHROUGH IN THE AORTA

Shirtaev B.K.
orcid.org/0000-0002-0773-3878
Sundetov M.M.
orcid.org/0000-0002-0387-5422
Akilbekov S.D.
orcid.org/0000-0003-4613-1658
Khalykov K.U.
orcid.org/0000-0003-1266-697X
Kurbanov D.R.
orcid.org/0000-0002-0426-9387
Yerimova N.Zh.
orcid.org/0000-0002-0565-5327
Alkhanov B.A.
orcid.org/0000-0001-6543-0712
Kokimbayev D.A.
orcid.org/0000-0001-7879-3328
Kanazov A.K.
orcid.org/0000-0002-6032-3085

Corresponding author:
Yerimova N.Zh. – MD, pediatrician, "A.N. Syzganov National Scientific Center for Surgery" JSC.
E-mail: nazier1611@gmail.com

Conflict of interest
The authors declare that they have no conflicts of interest

Keywords
echinococcosis, mediastinum, surgery

Shirtaev B.K.[1], Sundetov M.M.[1], Akilbekov S.D.[2], Khalykov K.U.[1], Kurbanov D.R.[1], Erimova N.Zh.[1], Alkhanov B.A.[1], Kokimbaev D.A.[1], Kanazov A.K.[1]
[1]«A.N. Syzganov National Scientific Center for Surgery» JSC, Almaty, Kazakhstan
[2]Al-Farabi Kazakh National University, Almaty, Kazakhstan

Abstract

The article describes a clinical case of a breakthrough of an echinococcal mediastinal cyst in the thoracic aorta and an embolism of the femoral artery. The issues of differential diagnosis and therapeutic tactics are considered. The effectiveness of the use of minimally invasive endovascular methods is highlighted. The need for a multidisciplinary approach and subsequent anthelmintic therapy is shown.

Көкірекаралық эхинококкты кистаның кеуде аортасына жарылуының клиникалық көрінісі

Корреспонденция үшін автор:
Еримова Н.Ж. – дәрігер-педиатр, «А.Н. Сызғанов атындағы Ұлттық ғылыми хирургия орталығы» АҚ.
E-mail: nazier1611@gmail.com

Мүдделер қақтығысы
Авторлар мүдделер қақтығысының жоқтығын мәлімдейді

Түйін сөздер
эхинококкоз, көкірекаралық, хирургия

Ширтаев Б.К.[1], Сундетов М.М.[1], Акильбеков С.Д.[2], Халықов Қ.Ұ.[1], Курбанов Д.Р.[1], Еримова Н.Ж.[1], Алханов Б.А.[1], Көкімбаев Д.А.[1], Каназов А.К.[1]
[1]«А.Н. Сызғанов атындағы Ұлттық ғылыми хирургия орталығы» АҚ, Алматы қ., Қазақстан
[2]Әл-Фараби атындағы Қазақ Ұлттық университеті, Алматы қ., Қазақстан

Аңдатпа

Мақалада көкірекаралық эхинококкты кистаның кеуде аортасына жарылуы және сан артериясына эмболиясының клиникалық жағдайы сипатталған. Дифференциалды диагностика және емдеу тактикасы мәселелері қарастырылған. Аз инвазивті эндоваскулярлық әдістерді қолдану тиімділігі көрсетілген. Мультидисциплинарлы қарау тәсілдерін қолдану және антигельминттік терапияның қажеттілігі қарастырылған.

Клинический случай эхинококковой кисты средостения с прорывом в аорту

Автор для корреспонденции:
Еримова Н.Ж. – врач-педиатр, АО «Национальный научный центр хирургии им. А.Н. Сызганова».
E-mail: nazier1611@gmail.com

Конфликт интересов
Авторы заявляют об отсутствии конфликта интересов

Ключевые с лова
эхинококкоз, средостение, хирургия

Ширтаев Б.К.[1], Сундетов М.М.[1], Акильбеков С.Д.[2], Халыков К.У.[1], Курбанов Д.Р.[1], Еримова Н.Ж.[1], Алханов Б.А.[1], Кокимбаев Д.А.[1], Каназов А.К.[1]
[1]АО "Национальный научный центр хирургии им. А.Н. Сызганова", г. Алматы, Казахстан
[2]Казахский национальный университет им. Аль-Фараби, г. Алматы, Казахстан

Аннотация

В статье дано описание клинического случая прорыва эхинококковой кисты средостения в грудной отдел аорты и эмболией бедренной артерии. Рассмотрены вопросы дифференциальной диагностики и лечебной тактики. Освещена эффективность применения малоинвазивных эндоваскулярных методов. Показана необходимость мультидисциплинарного подхода и последующей противогельминтной терапии.

Introduction

The problem of echinococcosis, despite the progress made in the diagnosis and treatment, still remains relevant for our region. Over the past 10 years, more than 4,000 cases of human echinococcosis have been registered in Kazakhstan. There is a tendency to increase the frequency of combined echinococcosis lesions, which is associated with a decrease in the level of veterinary supervision and animal husbandry technologies [1,6]. Unusual localization of echinococcosis is rare. It is known that an echinococcal cyst can be located in any organ and tissue. The frequency of rare localities of echinococcosis ranges from 1% to 7% , and often, these patients are operated on under different diagnoses, and the presence of a cyst is established only during surgery [2,10]. Localization of an echinococcal cyst in the posterior mediastinum is very rare. This publication presents the experience of surgical treatment of a patient with mediastinal echinococcosis with a breakthrough in the thoracic aorta[12]. The individual approach in determining the treatment tactics is shown. Given the rare frequency of such cases, the description of this clinical case is useful.

Clinical case

Patient A., 44, was admitted to our center on 23.01.2020 with complaints of chest pain, shortness of breath during exercise, dry cough, fever, general weakness.

From the anamnesis: he became acutely ill when there was pain in the right lower limb. At the place of residence, after an examination by a vascular surgeon, a diagnosis was made: «Thrombosis of the femoral artery on the right». The operation was performed: Revision of the femoral artery, embolectomy from the femoral artery. Intraoperative: the cause of thrombosis was daughter echinococcal cysts. Later, due to the appearance of chest pain, hyperthermia, the patient underwent a chest CT scan, which revealed an echinococcal mediastinal cyst. Aortic aneurysm? After conducting telemedicine, given the high risk of developing a thoracic aortic rupture, the presence of a giant echinococcal cyst in the posterior mediastinum, the patient was transferred to our center by air ambulance. Upon admission to our center, the patient underwent a CT scan of the chest with vascular contrast, in which at the level of Th7-Th12 vertebrae, along the posterior-lateral wall of the aorta, the presence of an irregular formation, with a thick capsule, liquid density, heterogeneous structure, with many partitions and with a leak of contrast material from the aorta is determined

A consultation was held consisting of angiosurgeons, thoracic surgeons, interventional surgeons, and anesthesiologists. Given the high risk of thoracotomy and echinococcectomy, it was decided to perform stenting of the thoracic aorta as the first step. 31.01.2020 was performed: thoracic aortography, endovascular implantation of a stent graft in the descending thoracic aorta. 05.02.2020 after the improvement of the condition, he was dis-

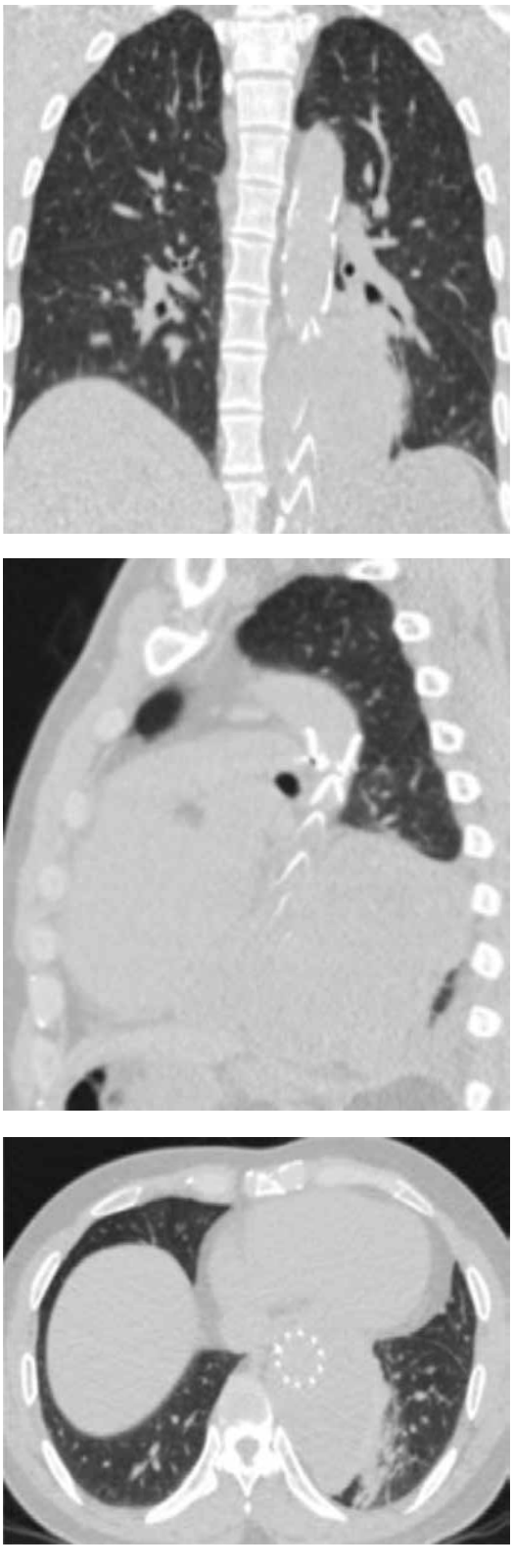


Figure 1.
Computed tomography in coronary,sagittal, and axial projections

Figure 2.
Computed tomography with contrast

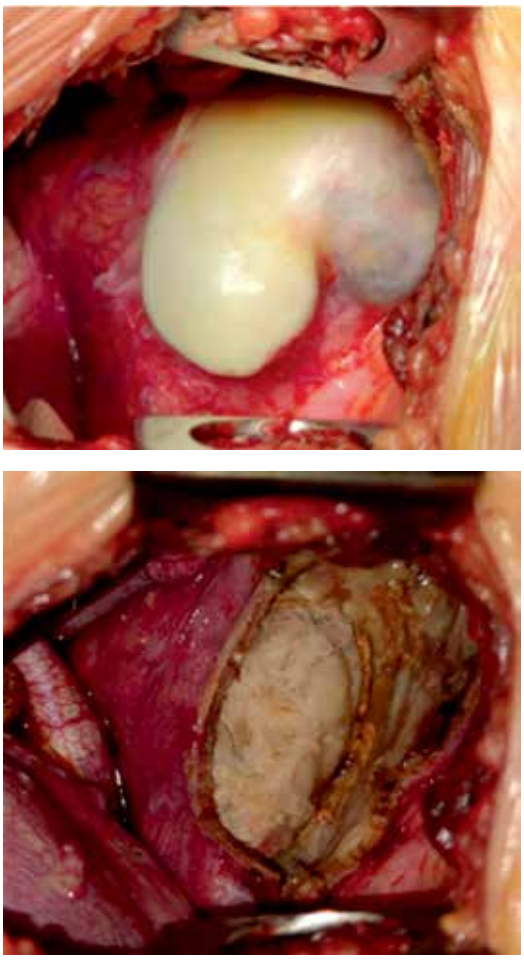


Figure 3.
Intraoperative pictures of mediastinal Echinococcus

charged for outpatient treatment at the place of residence.

In the future, as planned on 17.08.2020, the patient was hospitalized in the NSCS named after A. N. Syzganov.

Upon admission, the general condition of the patient is moderate due to the underlying disease.

Computed tomography of the chest from 02.07.2020 (Figure. 1): CT–picture of signs of an echinococcal cyst paravertebral to the left.

Computed tomography of the chest with contrast from 18.08.2020 (Figure. 2): The state after stenting of the descending thoracic aorta. Echinococcal cyst of the posterior mediastinum, in dynamics with a moderate increase in size.

On 21.08.2020, a left thoracotomy and a mediastinal echinococcectomy were performed. Intraoperatively (Figure. 3): there is an echinococcal cyst in the posterior mediastinum, measuring 13.0 x 8.0 x 6.0 cm.

Over the next few days, the patient received antibacterial and symptomatic therapy. The postoperative period passed without complications. The patient was discharged in a satisfactory condition on the 6th day after the operation. In the future, the use of albendazole was recommended for the prevention of relapse.

Discussion

An analysis of the literature shows that the most frequent clinical manifestations of echinococcosis include polymorphism of symptoms, which depend on the localization of cysts, their size, rate of development, complications, and variants of combined organ damage[3]. The introduction of modern high-tech research methods, the wider use of ultrasonographic methods has led to an improvement in the diagnosis of echinococcosis in the early stages of invasion and, as a result, a wider use of conservative therapy and the use of “waiting and watching” tactics[5]. The choice of optimal management tactics should be individual and based on an analysis of the risks and benefits of a particular method, taking into account contraindications [9]. The question of the expediency of prescribing anthelmintic drugs before surgery remains debatable [7]. There are data on the effectiveness of preoperative drug therapy, but there is insufficient reliable data in the literature on the feasibility of such tactics [4,11]. Postoperative anthelmintic therapy significantly increases the effectiveness of treatment [8]. Timely administration of anthelmintic drugs practically minimizes the risk of relapse of the disease, provided that the rules of surgical intervention and removal of all identified cysts are followed [13].

Conclusions

When diagnosing echinococcosis of the thoracic cavity organs of rare localization, it is advisable to conduct a comprehensive examination. For the purpose of differential diagnosis, to clarify the exact localization of the process in the chest cavity, the size of the formation and the nature of its contents, it is necessary to conduct such diagnostic methods as CT of the chest with vascular contrast and echocardiography. Echinococcosis is asymptomatic for a long time, which makes it difficult to diagnose and causes the detection of the disease in the complication stage. The use of an integrated approach in the diagnosis of cystic formations allows not only to identify echinococcal cysts of various localization, but also to judge the presence of complications, topographical and anatomical features, the state of the surrounding organs and structures, and, ultimately, to choose the most rational treatment tactics. The application of a multidisciplinary approach using all the possibilities of new medical technologies allows you to minimize the risks of surgical interventions. All patients operated on for echinococcosis, it is advisable to conduct anthelmintic therapy.

References

1. Travin N.O. Hirurgija jehinokokkoza serdca i legkih: Avtoref. dis. ... d-ra med. nauk. [Travin N.O. Surgery of echinococcosis of the heart and lungs: Author's abstract. dis. Dr. med. sciences] - M., 2007. - 44 p. (in Russian)
2. Diagnosis, treatment, and management of echinococcosis / McManus D. P., Gray D.J., Zhang W., Yang Y. // BMJ. - 2012. - Vol. 344. - P. e3866.
3. Neumayr A., Tamarozzi F., Goblirsch S. et al. Spinal Cystic Echinococcosis - A Systematic Analysis and Review of the Literature: Part 2. Treatment, Follow-up and Outcome // PLoS Negl. Trop. Dis. - 2013. - Vol. 7 (9). - P. e2458. doi: 10.1371/journal. pntd. 0002458
4. Sergiev V.P.,Legon'kov Ju.A., Tumol'skaja N.I. i dr. Jehinokokkoz al'veoljarnyj (mnogokamernyj al'veokokkoz). [Sergiev V.P., Legonkov Yu.A., Tumolskaya N.I. and others. Echinococcosis alveolar (multichamber alveo-coccosis)]. Klinika, diagnostika, lechenie, profilaktika: informacionno-metodicheskoe posobie. - M.: Vektor-Best, 2010. - 31 p.
5. Sergiev V. P., Legon'kov Ju.A., Poletaeva O. G. i dr. Jehinokokkoz cistnyj (odnokamernyj) [Sergiev VP, Legonkov Yu.A., Poletaeva OG et al. Cystic echinococcosis (single-chamber) (in Rus)]. Klinika, diagnostika, lechenie, profilaktika. Informacionno-metodicheskoe posobie. - M.: Vektor-Best, 2008. - 34 p. (in Russian)
6. Tumol'skaja N.I. Cestodozy // Kachestvo zhizni. [Tumolskaya N.I. Cestodosis // Quality of life] Medicina. - 2005. - № 1 (8). - p. 45-51. (in Russian)
7. Ben Amor N. et al. Treatment of a case of parietal hydatid cyst by puncture // J. Belge Radiol. - 1987. -Vol. 70. - P. 333-336.
8. Expert consensus for the diagnosis and treatment of cystic and alveolar echinococcosis in humans External Web Site Icon / Brunetti E., Kern P., Vuitton D.A. // Acta Trop. -2010 April. - Vol. 11. - P. 1-16.
9. Guidelines for treatment of cystic and alveolar echinococcosis in humans // Bull. World Health Organ. -1996. - Vol. 74 (3). - P. 231-242.
10. Junghanss T., da Silva A.M., Horton J. et al. Clinical management of cystic echinococcosis: state of the art, problems, and perspectives // Am. J. Trop. Med. Hyg. -2008. - Vol. 79 (3). - P. 301-311.
11. Kovalenko F.P., Perch un N.I., Chernikova E.A. et al. Statistics of sickness of larval echinococcosis of the population and agricultural animals in the Russian Federation in 1989-2001. (статья) // Proceedings of the 19th International Conference of the World Association for the Advancement of Veterinary Parasitology. - New Orleans, Louisiana. - 2003. - P. 209.
12. Falagas M.E., Bliziotis I.A. Albendazole for the treatment of human echinococcosis: a review of comparative clinical trials // Am. J. Med. Sci. - 2007. - Vol. 334, N 3. -P. 171-179.
13. Stamatakos M., Sargedi C., Stefanaki Ch. et al. Anthelminthic treatment: an adjuvant therapeutic strategy against Echinococcus granulosus // Parasitol. Int. - 2009. -Vol. 58, N 2. - P. 115-120.

UDC: 616.12:314.42/482

THE POSTOPERATIVE COMPLICATED COURSE PROBABILITY PREDICTION IN CARDIAC SURGICAL PATIENTS

Sagatov I.Y.
orcid.org/0000-0002-4668-1513

Ualieva A.Y.
orcid.org/0000-0002-4776-1988

Corresponding author:
Sagatov I.E. – Head of Scientific Research Management Department, JSC "A.N. Syzganov National Scientific Center for Surgery". E-mail: inkar_sagatov@mail.ru

Conflict of interest
The authors declare that they have no conflicts of interest

Sagatov I.Y.[1], **Ualieva A.Y.**[2]
[1]«A.N. Syzganov National Scientific Center for Surgery» JSC, Almaty, Kazakhstan
[2]Al-Farabi Kazakh National University, Almaty, Kazakhstan

Abstract

Purpose of the study: *to model the operative risk in patients with congenital heart defects, acquired valvular heart disease and ischemic heart disease using the stratification scales EuroSCORE and Aristotle Basic Complexity score.* ***Materials and methods.*** *559 patients, who were in inpatient treatment in the period from 2011 to 2019 were examined and underwent surgical correction before the surgery. Among them, 327 (58,5%) patients with various forms of congenital heart defects (CHD), 120 (21,5%) patients with isolated and combined acquired valvular heart disease (VHD) and 112 (20,0%) - with chronic forms of ischemic heart disease (IHD).* ***Results.*** *According to the Aristotle Basic Complexity score, the operative risk in patients with CHD averaged 6.6±3.8 points, which corresponded to the 2nd level of complexity. The operative risk according to the Aristotle Basic Complexity score in patients with CHD and complicated postoperative course was 8,35±4,1 points (3,0-17,5), and in patients with a smooth course of the postoperative period – 6,34±3,5 points (3,0-2,5) with statistically significant (p=0,002). EuroSCORE scale logistic parameters's statistical analysis showed that in patients with acquired VHD and a smooth postoperative course, were significantly lower (approximately 3 times) and with a significant difference compared to patients with complicated course: 4,1±3,6% versus 12,9±14,0% (p=0,008). A similar state was observed while analyzing the logistic parameters of the EuroSCORE scale in patients with chronic forms of IHD: 3,6±3,4% and 8,8±10,2%, respectively (p=0,003).* ***Conclusion:*** *The operative risk according to the Aristotle Basic Complexity Score in patients with different types of CHD is statistically significantly different in patients with a complicated and smooth postoperative course (p=0,002). The EuroSCORE stratification risk assessment scale presents certain possibilities for predicting the complicated course of the early postoperative period in patients with acquired VHD (p=0,008).*

Keywords
operative risk, EuroSCORE-II, Aristotle Basic Complexity score

Кардиохирургиялық науқастардың операциядан кейінгі асқынған ағымының ықтималдығын болжау

Корреспонденция үшін автор:
Сағатов І.Е. – ҒЗЖ бөлімінің меңгерушісі, «А.Н. Сызғанов атындағы Ұлттық ғылыми хирургия орталығы» АҚ. E-mail: inkar_sagatov@mail.ru

Мүдделер қақтығысы
Авторлар мүдделер қақтығысының жоқтығын мәлімдейді

Сағатов І.Е.[1], **Уәлиева А.Е.**[2]
[1]«А.Н. Сызғанов атындағы Ұлттық ғылыми хирургия орталығы» АҚ, Алматы қ., Қазақстан
[2]Әл-Фараби атындағы Қазақ Ұлттық университеті, Алматы қ., Қазақстан

Аңдатпа

Зерттеудің мақсаты *- әр түрлі топтардағы жүректің туа біткен ақауы (ЖТБА), жүректің қақпақшалы ауруы (ЖҚА) және жүректің ишемиялық ауруы (ЖИА) бар науқастардың ең ықтимал операциялық қауіпін EuroSCORE және ABC score шкалаларын қолдана отырып модельдеу.* ***Материал және әдістер.*** *2011 жылдан 2019 жылға дейінгі кезеңде А.Н. Сызғанов антындағы ҰҒХО-ң кардиохирургия бөлімшесіне жатқызылған барлығы 559 науқас операция алдында тексерілді және олар оталық ем қабылдады. Олардың ішінде ЖТБА-ң әр түрлі формалары бар 327 (58,5%) науқас, жекеленген және қосарланған ЖҚА-мен 120 (21,5%) науқас және ЖИА-ң созылмалы түрлерімен 112 (20,0%) науқас болды.* ***Нәтижелер.*** *ABC score бойынша ЖТБА-ы бар науқастардың операциялық қауіпі орта есеппен 6,6±3,8 баллды құрады, бұл екінші күрделілік деңгейіне сәйкес келді. Бұл жағдайда максималды мән 21,5-ке жетті, ал минималды мән 3,0 баллды құрады. ЖТБА-ы бар және операциядан кейінгі асқынған ағымы бар науқастарда ABC score ұпайына сәйкес операциялық қауіп 8,35±4,1 баллды (3,0-17,5) құраса, ал операциядан кейінгі кезеңнің асқынбаған ағымы бар науқастарда статистикалық маңызды айырмашылықпен (p=0,002) 6,34±3,5 баллды (3,0-2,5) құрады. EuroSCORE шкаласының логистикалық көрсеткіштерінің статистикалық талдауы көрсеткендей, ЖҚА-ы және операциядан кейінгі асқынбаған ағымы бар науқастарда олар едәуір төмен және ағымы асқынған науқастармен салыстырғанда айтарлықтай айырмашылық көрсетті: 4,1±3,6% қарсы 12,9±14,0% (p=0,008). Осыған ұқсас жағдай созылмалы ЖИА-ы бар науқастардың EuroSCORE шкаласының логистикалық көрсеткіштерін талдау барысында байқалды: сәйкесінше 8,8±10,2% қарсы 3,6±3,4% (p=0,003).* ***Қорытынды.*** *Әр түрлі ЖТБА-ы бар науқастарда ABC score көрсеткіші бойынша операциялық қауіп операциядан кейінгі асқынған және асқынбаған кезеңдері статистикалық тұрғыдан айтарлықтай ерекшеленді (p=0,002). Қауіпті бағалауға арналған EuroSCORE стратификациялық шкаласы ЖҚА-ы бар науқастардың операциядан кейінгі ерте кезеңнің асқынған ағымын болжаудың белгілі бір мүмкіндіктерін ұсынады (p=0,008).*

Түйін сөздер
операциялық қауіп, EuroSCORE-II, Aristotle Basic Complexity score

Прогнозирование вероятности осложненного послеоперационного течения у пациентов кардиохирургического профиля

Сагатов И.Е.[1], Уалиева А.Е.[2]
[1]АО «Национальный научный центр хирургии им. А.Н. Сызганова», г. Алматы, Казахстан,
[2]Казахский Национальный университет им. Аль-Фараби, г. Алматы, Казахстан

Автор для корреспонденции:
Сагатов И.Е. *– руководитель отдела менеджмента НИР, АО «Национальный научный центр хирургии им. А.Н. Сызганова». E-mail: inkar_sagatov@mail.ru*

Конфликт интересов
Авторы заявляют об отсутствии конфликта интересов

Аннотация

Цель исследования *- используя EuroSCORE и ABC score смоделировать наиболее вероятные операционные риски у пациентов в различных группах: с врожденными пороками сердца, приобретенными клапанными пороками сердца и ишемической болезнью сердца.* ***Материал и методы.*** *Перед хирургической операцией было обследовано и подвергнуто оперативной коррекции всего 559 пациентов, находившихся на стационарном лечении в отделении кардиохирургии ННЦХ им. А.Н. Сызганова в период с 2011 по 2019 год, из них 327 (58,5%) пациентов с различными формами ВПС, 120 (21,5%) пациентов с изолированными и комбинированными ППС и 112 (20,0%) – с хроническими формами ИБС.* ***Результаты.*** *По шкале ABC score операционный риск у пациентов с ВПС в среднем составил 6,6±3,8 балла, что соответствовало 2-му уровню сложности. При этом максимальное значение достигало 21,5, а минимальное значение составляло 3,0 балла. Операционный риск по шкале ABC score у пациентов с ВПС и осложненным послеоперационным течением составил 8,35±4,1 балла (3,0–17,5), а у пациентов с гладким течением послеоперационного периода – 6,34±3,5 балла (3,0–21,5) при статистически достоверном различии (p=0,002). Статистический анализ логистических показателей шкалы EuroSCORE показал, что у пациентов с ППС и гладким послеоперационным течением они были значительно ниже и с достоверным различием по сравнению с пациентами, имевшими осложненное течение: 4,1±3,6% против 12,9±14,0% (p=0,008). Похожее положение дел прослеживалось и при анализе логистических показателей шкалы EuroSCORE у пациентов с хроническими формами ИБС: 3,6±3,4% против 8,8±10,2% соответственно (p=0,003).* ***Заключение.*** *Операционный риск по шкале ABC score у пациентов с различными видами ВПС статистически достоверно отличается у пациентов с осложненным и гладким послеоперационными течениями (p=0,002). Стратификационная шкала оценки риска EuroSCORE представляет определенные возможности при прогнозировании осложненного течения раннего послеоперационного периода у пациентов с приобретенными клапанными пороками сердца (p=0,008).*

Ключевые слова
операционный риск, EuroSCORE-II, Aristotle Basic Complexity score

Introduction

As a general rule, assessing the risks associated with cardiac surgery, considers factors such as compensation, comorbidity, age, complexity of anatomy, time of artificial circulation, time of aortic clamping, depth of hypothermia, methods of protection of ischemic myocardium, experience of the surgeon, category of complexity of surgical interventions, equipment of the clinic and others [1-4]. In this regard, it is obvious that cardiac surgeons need to use one or more unified operative risk assessment scales in order to have more information about the frequency and nature of possible complications in the early postoperative period. However, as experience shows, in most cases there is an underestimation of the prognostic capabilities of stratification systems, which, among other things, can lead to an undesirable outcome of the disease with an adequate method of treatment [1-4].

The aim of the study is to stratify and model the most probable operative risks in patients in different groups: with congenital heart defects, acquired valvular heart disease and coronary heart disease using EuroSCORE and Aristotle Basic Complexity score.

Material and methods

559 patients, who were in inpatient treatment at A.N. Syzganov NSCS's department of Cardiac Surgery in the period from 2011 to 2019 were examined and underwent surgical correction before the surgery, 327 (58.5%) patients with various forms of congenital heart disease (CHD), 120 (21.5%) patients with isolated and combined acquired valvular heart disease (VHD) and 112 (20.0%) – with ischemic heart disease (IHD). General characteristics of patients are demonstrated in Table 1.

The mean age of patients with CHD at the time of surgery was 19.6±14.8 years. The youngest of the patients was 3 months old and the oldest was 67. Females predominated among the patients (60.9%). These were mainly patients with various types of septal defects, less often - with tetralogy of Fallot, supra- and intracardial forms of partial abnormal drainage of pulmonary veins, incomplete and complete balanced forms of atrioventricular septal defect, rupture of aneurysm of the Valsalva sinus and other obstructive defects and malformations at the level of valves parts of the ventricles.

The average age of patients with acquired VHD at the time of surgery was 48.8±14.3 years. The average age of patients under 40 was 27.3±9.5, over 40 years old - 55.4±7.4. The youngest patient was 10 years old and the oldest 72. Among the patients, males predominated slightly (52.5%). In most cases, plastic and/or prosthetics of the mitral and/or aortic valves were performed in combination with

Table 1.
General characteristics of patients

Characteristic	CHD	VHD	IHD	p		
	1	2	3	1-2	2-3	1-3
Quantity, abs.,%	327 (58,5)	120 (21,5)	112 (20,0)	-	-	-
Mean age, years	19,6±14,8	48,8±14,3	60,8±8,5	<0,05	<0,05	<0,05
Male, abs.,%	128 (39,1)	63 (52,5)	100 (89,3)	-	-	-
Female, abs.,%	199 (60,9)	57 (47,5)	12 (10,7)	-	-	-
Asian race, abs.,%	295 (90,2)	103 (85,8)	74 (66,1)	-	-	-
European race, abs.,%	32 (9,8)	17 (14,2)	38 (33,9)	-	-	-
LV EF, %	68,8±7,2	61,0±11,8	52,7±14,2	<0,05	>0,05	<0,05
Average time of AC, min	123,4±79,2	154,2±59,5	138,3±63,3	>0,05	>0,05	>0,05
Average time of aortic compression, min	75,9±48,8	111,4±43,7	84,0±42,4	<0,05	<0,05	>0,05
PCCP, %	52,8	86,0	25,8	-	-	-
Blood cardioplegia, %	47,2	14,0	74,2	-	-	-
Resternotomy, %	2,4	9,2	5,4	-	-	-

Note: EF – ejection fraction; PCCP – pharmaco-cold cardioplegia

suture annuloplasty or tricuspid valve prosthetics or without them, including in a minimally invasive way. In several cases, Kawazoe atrioplasty, radiofrequency ablation (RFA), and thrombectomy from the left atrium and left atrial appendage with ligation of the appendage or suturing of the latter from the inside were performed additionally.

The mean age of patients with IHD at the time of surgery was 60.8±8.5. The youngest patient was 35 years old and the oldest 82. Among the patients, males predominated (89.3%). In most cases, the "gold standard" coronary artery bypass grafting in the form of mammary-coronary anastomosis in combination with autovenous bypass, autovenous coronary bypass, beating coronary artery bypass grafting and minimally invasive approach (MIDCAB) was used. Less commonly, coronary artery bypass grafting was combined with left ventricular remodeling according to Dore's or Cooley's techniques and thrombectomy, RFA, as well as with radical correction of concomitant CHD.

To stratify the operative risk, such scales as EuroSCORE - for patients with acquired valvular heart disease and coro nary artery disease, and Aristotle Basic Complexity score - for patients with various types of CHD were used.

Data processing, including statistical data, was carried out using Windows applications (Access, Excel), as well as Statistica 5.5 and programs for calculating stratification scale indicators (euroscore.org; aristotleinstitute.org). Mean values are presented with standard deviation (M ± m). The differences between the mean values were considered significant at $p<0.05$. Normality criteria were determined by Kolmogorov-Smirnov and Shapiro-Wilk.

Aristotle score

A group of 50 surgeons from 23 countries, representatives of the four largest international societies of pediatric cardiac surgery (STS, EACTS, Congenital Heart Surgeons Society - CHSS and ECHSA), concluded that the complexity of surgical intervention consists of three factors: the possibility of surgical mortality, the possibility of surgery interventions and surgery technical complexity [1-6].

Each surgery received a score for each of the three factors ranging from 0.5 to 5, forming a score ranging from 1.5 (0.5 + 0.5 + 0.5) to 15 (5 + 5 + 5). Surgical interventions were divided into categories (similar to RACHS-1) by points: 1stlevel (from 1.5 to 5.9), 2ndlevel (from 6.0 to 7.9), 3rdlevel (8.0 to 9.9) and 4thlevel (10.0 to 15.0).

EuroSCORE scale (EuroSCORE-II)

The European System for Cardiac Operative Risk Evaluation (EuroSCORE) is a cardiac risk model for predicting mortality after cardiac surgery. The scale was published in 1999 and is based on an international European database of patients undergoing cardiac surgery by the end of 1995 [24-29].

EuroSCORE-II, was first proposed at the annual conference of the European Association of Cardiothoracic Surgeons (EACTS) in Lisbon in 2011 [7]. Unlike the previous version, EuroSCORE-II allows stratification of operative risk, including by the following factors: insulin-dependent diabetes mellitus; 1-, 2-, 3-, 4th functional class (FC) according to NYHA; angina pectoris of the 4th FC according to CCS; left ventricular function, including left ventricular ejection fraction (EF) <20%; pulmonary hypertension, including the mean pressure in the pulmonary artery of 31–55 mm Hg; volume of surgery: isolated coronary artery bypass grafting, one procedure without coronary artery bypass grafting, two or three procedures [7].

Results

According to the Aristotle Basic Complexity score, the operative risk in patients with CHD av-

Table 2
Criteria for normality according to Kolmogorov-Smirnov and Shapiro-Wilk

Group	Variables	Normality criterion					
		Kolmogorov-Smirnov			Shapiro-Wilk		
		Statistics	degree of freedom	P	Statistics	degree of freedom	P
CHD	smooth	.234	187	.000	.823	187	.000
	complicated	.162	45	.005	.936	45	.015
VHD	smooth	.247	32	.000	.699	32	.000
	complicated	.256	17	.004	.785	17	.001
IHD	smooth	.212	45	.000	.652	45	.000
	complicated	.314	14	.001	.662	14	.000

Table 3
Indicators of operational risk in patients with CHD, VHD and IHD, depending on the course of the early half-operational period

Group	Variables	N	Average	Standard deviation	Median	Interquartile range	P
CHD	smooth	187	6.34	3.535	6.00	4	0,002
	complicated	45	8.35	4.079	8.00	6	
VHD	smooth	32	4.09	3.577	3.19	3	0,008
	complicated	17	12.85	13.928	7.71	15	
IHD	smooth	45	3.57	3.359	2.54	3	0,003
	complicated	14	8.82	10.172	5.56	6	

eraged 6.6±3.8 points, which corresponded to the 2nd level of complexity. In this case, the maximum value reached 21.5, and the minimum value was 3.0 points. The operative risk according to the Aristotle Basic Complexity score in patients with CHD and complicated postoperative course was 8.35±4.1 points (3.0-17.5), and in patients with a smooth course of the postoperative period - 6.34±3.5 points (3.0–21.5) with a statistically significant difference (p=0.002).

Since the distribution of all variables is not normal according to the Kolmogorov-Smirnov and Shapiro-Wilk criteria, the Median and interquartile range were also used for comparative assessment.

EuroSCORE scale logistic parameters's statistical analysis showed that in patients with VHD and smooth postoperative course, were significantly lower and with a significant difference compared with patients with complicated course: 4.1±3.6% versus 12.9±14.0 % (p=0.008) (Table 3).

A similar state was observed while analyzing the EuroSCORE scale logistic parameters in patients with chronic forms of IHD: 3.6±3.4% versus 8.8±10.2%, respectively (p=0.003) (Table 3).

According to the obtained results, a rather significant difference in the EuroSCORE scale logistic parameters can be noted in patients with VHD with complicated and smooth postoperative course. And in patients with coronary artery disease with complicated and smooth postoperative course, the difference in indicators was not so significant, although it was more than 2 times higher. As a result of the statistical analysis of the EuroSCORE logistic indicators in patients with acquired valvular pathology, the following data were obtained: in patients under the age of 40, regardless of the course of the early postoperative period, the indicators were 3.5±2.2%, and in patients over the age of 40 - 8.4±5.1% (p=0.397).

Statistically significant differences were found for all indicators, the Mann-Whitney test. The above data are presented more clearly in the diagrams (Fig. 1, 2, 3).

Discussion

There are numerous works devoted to risk stratification in cardiac surgery using various scalesas Aristotle Basic Complexity score, Aristotle Comprehensive Complexity score, EuroSCORE, EuroSCORE-II, GRACE, Mass-DAC Mortality Risk, PCI Risk score, Risk Adjustment for Congenital Heart Surgery - 1, STS score, STS-EACTS Mortality

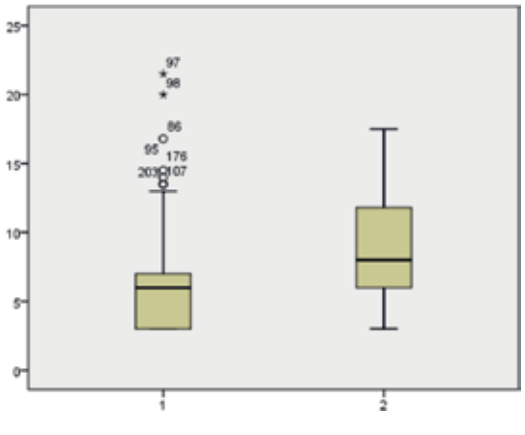


Figure 1
Risk stratification in patients with CHD: 1 - smooth, 2 - complicated course (p = 0.002)

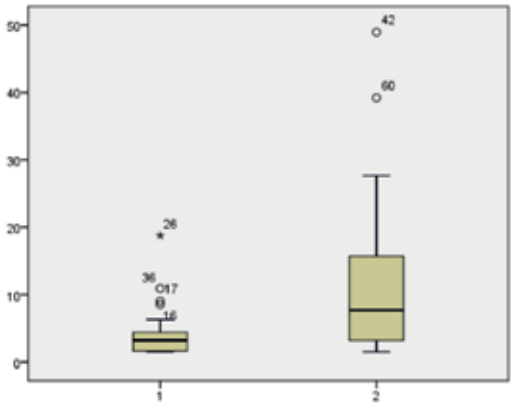


Figure 2
Risk stratification in patients with VHD: 1 - smooth, 2 - complicated course (p = 0.008)

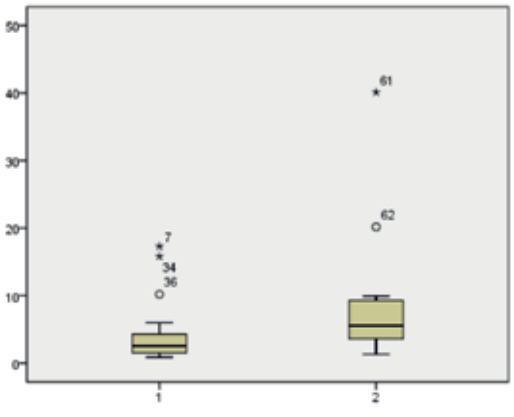


Figure 3
Risk stratification in patients with IHD: 1 - smooth, 2 - complicated course (p = 0.003)

score, CRUSADE, SYNTAX score and many others. The predictive value of these scales is known and proven in patients with a large number of cases. The most popular in clinical practice among these stratification scales are EuroSCORE, EuroSCORE-II and SYNTAX score in patients with CAD and VHD, as well as Aristotle Basic Complexity score, RACHS-1, STS-EACTS Mortality score in patients with CHD [1-6, 8-29].

Taking into account obtained data, in order to ensure the most favorable conditions for surgery and the course of the hospital period in patients with high and significantly high operative risks, it is necessary: to attract additional safety technologies and other auxiliary methods of blood circulation; if necessary, divide operations into stages; if possible, use hybrid operations using modern endovascular technologies; refuse any surgical intervention due to an unreasonably high risk of mortality.

Conclusion

Operative risk according to the Aristotle Basic Complexity Score in patients with different types of CHD is statistically significantly different in patients with complicated and smooth postoperative course (p = 0.002).

The EuroSCORE stratification scale for risk assessment presents certain possibilities for predicting the complicated course of the early postoperative period in patients with acquired VHD (p = 0.008).

With high and significantly high operative risks according to the EuroSCORE (p = 0.008, p = 0.003) and Aristotle Basic Complexity Score (p = 0.002) scales, it is necessary to take into account the possible correction of the type, combination, sequence and volume of surgical correction.

References

1. Sagatov I.Y. Modeling of the operational risk in patients with congenital heart diseases. Cardiology. 2015. Vol. 131 (suppl. 1). P. 29-30.
2. Cavalcanti P.E., Santos C.A., Esmeraldo I.M., Chaves M.L., Lins R.F., Lima Rde C. Stratification of complexity in congenital heart surgery: comparative study of the Risk Adjustment for Congenital Heart Surgery (RACHS-1) method, Aristotle basic score and Society of Thoracic Surgeons-European Association for Cardio-Thoracic Surgery (STS-EACTS) mortality score. Rev Bras Cir Cardiovasc. 2015. Mar-Apr. Vol. 30 (2). P. 148-158.
3. Lacour-Gayet F., Clarke D., Jacobs J. et al. The Aristotle score for congenital heart surgery. SeminThorac Cardiovasc Surg Pediatr Card Surg Annu. 2004. № 7. P. 185-191.
4. Poullis M., Pullan M., Chalmers J., Mediratta N. The validity of the original EuroSCORE and EuroSCORE II in patients over the age of seventy. Interact Cardiovasc Thorac Surg. 2015. Feb. Vol. 20 (2). P. 172-177.
5. Sabuncu T., Demircin M., Dogan R., Y. Imaz M., Aypar U., Pa aoglu I. Comparison of risk scoring systems in congenital heart surgery. Turk J Pediatr. 2016. Vol. 58 (5). P. 512-517.
6. Wang T.K., Harmos S., Gamble G.D., Ramanathan T., Ruygrok P.N. Performance of contemporary surgical risk scores for mitral valve surgery. J Card Surg. 2017. Mar. Vol. 32 (3). P. 172-176.
7. The manuscript which supports the new model is being submitted for publication. The new model has been validated by the EuroSCORE Project Group and awaits validation by users worldwide. It was presented at EACTS in Lisbon on 3rd. 2011. Oct.
8. Khairy P, Ionescu-Ittu R, Mackie AS, Abrahamowicz M, Pilote L, Marelli AJ. Changing mortality in congenital heart disease. J Am Coll Cardiol. 2010;56(14):1149–1157.
9. Lacour-Gayet F, Clarke D, Jacobs J, Comas J, Daebritz S, Daenen W, Aristotle Committee et al. The Aristotle score: a complexity-adjusted method to evaluate surgical results. Eur J Cardiothorac Surg. 2004;25(6):911–924. O'Brien SM, Clarke DR, Jacobs JP, Jacobs ML, Lacour-Gayet FG, Pizarro C, et al. An empirically based tool for analyzing mortality associated with congenital heart surgery. J Thorac Cardiovasc Surg; 2009;138(5):1139–1153.
10. Jacobs JP, Edwards FH. Quality improvement and risk stratification for congenital cardiac surgery. In:

Sellke FW, Del Nido PJ, Swanson SJ, editors. Sabiston and Spencer Surgery of the chest. 8th ed. Philadelphia: Elsevier Publishing; 2010. pp. 2105–2123.
11. Jacobs JP, Jacobs ML, Lacour-Gayet FG, Jenkins KJ, Gauvreau K, Bacha E, et al. Stratification of complexity improves the utility and accuracy of outcomes analysis in a Multi-Institutional Congenital Heart Surgery Database: Application of the Risk Adjustment in Congenital Heart Surgery (RACHS-1) and Aristotle Systems in the Society of Thoracic Surgeons (STS) Congenital Heart Surgery Database. Pediatr Cardiol. 2009;30(8):1117–1130.
12. Jacobs JP, Jacobs ML, Austin EH, 3rd, Mavroudis C, Pasquali SK, Lacour-Gayet FG, et al. Quality measures for congenital and pediatric cardiac surgery. World J Pediatr Congenit Heart Surg. 2012;3(1):32–47.
13. Kogon B, Oster M. Assessing surgical risk for adults with congenital heart disease: are pediatric scoring systems appropriate? J Thorac Cardiovasc Surg. 2014;147(2):666–671.
14. Bojan M, Gerelli S, Gioanni S, Pouard P, Vouhй P. Comparative study of the Aristotle Comprehensive Complexity and the Risk Adjustment in Congenital Heart Surgery scores. Ann Thorac Surg. 2011;92(3):949–956.
15. Heinrichs J, Sinzobahamvya N, Arenz C, Kallikourdis A, Photiadis J, Schindler E, et al. Surgical management of congenital heart disease: evaluation according to the Aristotle score. Eur J Cardiothorac Surg. 2010;37(1):210–217.
16. Vijarnsorn C, Laohaprasitiporn D, Durongpisitkul K, Chantong P, Soongswang J, Cheungsomprasong P, et al. Surveillance of pediatric cardiac surgical outcome using risk stratifications at a tertiary care center in Thailand. Cardiol Res Pract. 2011
17. Jacobs JP, Jacobs ML, Austin EH, 3rd, Mavroudis C, Pasquali SK, Lacour-Gayet FG, et al. Quality measures for congenital and pediatric cardiac surgery. World J Pediatr Congenit Heart Surg. 2012;3(1):32–47.
18. Mattos SS, Neves JR, Costa MC, Hatem TP, Luna CF. An index for evaluating results in paediatric cardiac intensive care. Cardiol Young. 2006;16(4):369–377.
19. Vinocur JM, Menk JS, Connett J, Moller JH, Kochilas LK. Surgical volume and center effects on early mortality after pediatric cardiac surgery: 25-year North American experience from a multi-institutional registry. Pediatr Cardiol. 2013;34(5):1226–1236.
20. Pasquali SK, Li JS, Burstein DS, Sheng S, O'Brien SM, Jacobs ML, et al. Association of center volume with mortality and complications in pediatric heart surgery. Pediatrics. 2012;129(2):e370–e376.
21. Welke KF, O'Brien SM, Peterson ED, Ungerleider RM, Jacobs ML, Jacobs JP. The complex relationship between pediatric cardiac surgical case volumes and mortality rates in a national clinical database. J Thorac Cardiovasc Surg. 2009;137(5):1133–1140.
22. Welke KF, Karamlou T, Ungerleider RM, Diggs BS. Mortality rate is not a valid indicator of quality differences between pediatric cardiac surgical programs. Ann Thorac Surg. 2010;89(1):139–144.
23. Pasquali SK, He X, Jacobs JP, Jacobs ML, O'Brien SM, Gaynor JW. Evaluation of failure to rescue as a quality metric in pediatric heart surgery: an analysis of the STS Congenital Heart Surgery Database. Ann Thorac Surg. 2012;94(2):573–579.
24. Nashef SA, Roques F, Michel P, Gauducheau E, Lemeshow S, Salamon R. European system for cardiac operative risk evaluation (EuroSCORE). Eur J Cardiothorac Surg. 1999 Jul;16(1):9-13.
25. Roques F, Michel P, Goldstone AR, Nashef SA. The logistic EuroSCORE. Eur Heart J. 2003 May;24(9):882-3
26. Nashef SA, Roques F, Hammill BG, Peterson ED, Michel P, Grover FL, Wyse RK, Ferguson TB. Validation of European System for Cardiac Operative Risk Evaluation (EuroSCORE) in North American cardiac surgery. Eur J Cardiothorac Surg. 2002 Jul;22(1):101-5.
27. Roques F, Nashef SA, Michel P, Gauducheau E, de Vincentiis C, Baudet E, Cortina J, David M, Faichney A, Gabrielle F, Gams E, Harjula A, Jones MT, Pintor PP, Salamon R, Thulin L. Risk factors and outcome in European cardiac surgery: analysis of the EuroSCORE multinational database of 19030 patients. Eur J Cardiothorac Surg. 1999 Jun;15(6):816-22; discussion 822-3.
28. Sergeant P, de Worm E, Meyns B. Single centre, single domain validation of the EuroSCORE on a consecutive sample of primary and repeat CABG. Eur J Cardiothorac Surg 2001 Dec;20(6):1176-82
29. Sagatov I.Y., Medeubekov U.S. Dynamics of urine neutrophil gelatinase-associated lipocalin in cardiac surgery patients in the near term after surgery. Chirurgia 2019 April;32(2):59-61. DOI: 10.23736/S0394-9508.18.04797-6

МРНТИ 76.29.39

A RETROSPECTIVE REVIEW OF THE TREATMENT PERFORMED FOR STENOSING LESIONS OF THE INTERNAL CAROTID ARTERIES, OVER 5 YEARS IN THE CONDITIONS OF JSC NSCS

Baubekov A.A., Mierbekov E.M., Egemberdiev T.Zh., Israilova V.K., Matkerimov A.Zh., Tergeusizov A.S., Zhakubaev M.A., Tadjibaev T.K., Shamshiev A.S., Makkamov R.O., Saduakas A.E., Erkinbayev N.N., Khanchi M.
«A.N. Syzganov National Scientific Center for Surgery» JSC, Almaty, Kazakhstan

Baubekov A.A.
orcid.org/0000-0001-7197-4871
Mierbekov E.M.
orcid.org/0000-0002-7609-0300
Egemberdiev T.Zh.
orcid.org/0000-0001-6518-5825
Israilova V.K.
orcid.org/0000-0001-7778-9618
Matkerimov M.Zh.
orcid.org/0000-0001-8492-2958
Tergeusizov A.S.
orcid.org/0000-0002-5069-4034
Zhakubaev M.A.
orcid.org/0000-0002-0376-3172
Tadjibaev T.K.
orcid.org/0000-0002-9007-063X
Shamshiev A.S.
orcid.org/0000-0001-5868-057X
Makkamov R.O.
orcid.org/0000-0002-7222-1713
Saduakas A.E.
orcid.org/0000-0001-9213-2630
Erkinbayev N.N.
orcid.org/0000-0003-1409-6624
Khanchi M.
orcid.org/0000-0002-9372-4707
Corresponding author:
Baubekov A.A. *- vascular surgeon, «A.N. Syzganov National scientific center for surgery» JSC.*
E-mail: baubekov81@mail.ru

Conflict of interest
The authors declare that they have no conflicts of interest

Keywords
atherosclerosis, carotid endarterectomy, carotid artery stenting, ischemic stroke

Abstract

Prevention and treatment of acute disorders of cerebral circulation is the most important medical and social problem, is of great socio-economic importance. For the prevention of ischemic stroke, carotid endarterectomy has been used since 1954 (Eastcott H.H., 1954; DeBakey M.E., 1975), and carotid angioplasty and stenting since the mid-80s. (Kerber R., 1980). Despite a significant number of randomized multicenter comparative studies of the results of carotid endarterectomy and carotid stenting SAPPHIRE, CREST, CARESS, EVA-3S, SPACE, the issue of choosing the optimal method of surgical treatment of patients with carotid artery stenosis is currently not completely resolved. The work is based on the analysis of the results of surgical treatment of 113 patients with stenosis of the carotid arteries who were treated at the A.N. Syzganov from 2015 to June 2020. The patients were divided into two main groups according to the method of treatment. In the group of carotid endarterectomy, operations were performed in 58 patients, in the group of carotid stenting - 55 operations of stenting of the internal carotid artery with cerebral protection in patients. Thus, the statistical analysis included the results of 113 cases of primary surgery. In the conclusion of the work carried out, recommendations were developed for the introduction and selection of tactics for the introduction of patients with cerebrovascular atherosclerosis.

«А.Н. Сызғанов атындағы ҰҒХО» АҚ ішкі ұйқы артерияларының стенозды зақымдануы кезінде жүргізілген емге 5-жылдық ретроспективті шолу

Баубеков А.А., Миербеков Е.М., Егембердиев Т.Ж., Исраилова В.К., Маткеримов А.Ж., Тергеусизов А.С., Жакубаев М.А., Таджибаев Т.К., Шамшиев А.С., Маккамов Р.О., Садуақас А.Е., Еркінбаев Н.Н., Ханчи М.
«А.Н. Сызғанов атындағы Ұлттық ғылыми хирургия орталығы» АҚ, Алматы қ., Қазақстан

Корреспонденция үшін автор:
Баубеков А.А. *– қан тамырлары хирургі, «А.Н. Сызғанов атындағы Ұлттық хирургия орталығы» АҚ.*
E-mail: baubekov81@mail.ru

Мүдделер қақтығысы
Авторлар мүдделер қақтығысының жоқтығын мәлімдейді

Түйін сөздер
атеросклероз, каротидтік энтертерэктомия, ұйқы артериясын стенттеу, ишемиялық инсульт

Аңдатпа

Ми қан айналымының жедел бұзылуларының алдын алу және емдеу маңызды әлеуметтік-экономикалық маңызы бар медициналық-әлеуметтік проблема болып табылады. Ишемиялық инсульттің алдын алу үшін 1954 жылдан бастап каротидтік эндартерэктомия (Eastcott H.H., 1954; DeBakey M.E., 1975), ал 80-ші жылдардың ортасынан бастап каротидті ангиопластика және стенттеу қолданылады. (Кербер Р., 1980). SATPHIRE, CREST, CARESS, EVA-3S, SPACE каротидті эндартерэктомия және каротидті стенттеу нәтижелерін рандомизирленген мультиорталықты салыстырмалы зерттеулердің маңызды санына қарамастан, қазіргі уақытта каротид артериясының стенозы бар науқастарды оңтайлы хирургиялық емдеу әдісін таңдау мәселесі толығымен шешілмегені шешілді. Жұмыс тәжірбиесі 2015 жылдан 2020 жылдың маусымына дейін А.Н.Сызғанов атындағы Ұлттық ғылыми хирургия орталығында емделген каротид артерияларының стенозы бар 113 науқастың хирургиялық емдеу нәтижелерін талдауға негізделген. Науқастар емдеу әдісі бойынша екі үлкен топқа бөлінді. Каротидтік эндартерэктомия тобында 58 науқасқа операциялар, каротидті стенттеу тобында - науқастарға мидың қорғанысымен ішкі ұйқы артериясын 55 рет стентациялау операциялары жасалды. Осылайша, статистикалық талдауға алғашқы хирургиялық араласудың 113 жағдайының нәтижелері енгізілді. Жүргізілген жұмыс қорытындысында цереброваскулярлық атеросклерозбен ауыратын науқастарды енгізу тактикасын енгізу және таңдау бойынша ұсыныстар әзірленді.

Ретроспективный обзор проведенного лечения при стенозирующих поражениях внутренних сонных артерий, за 5 лет в условиях АО ННЦХ

Баубеков А.А., Миербеков Е.М., Егембердиев Т.Ж., Исраилова В.К., Маткеримов А.Ж., Тергеусизов А.С., Жакубаев М.А., Таджибаев Т.К., Шамшиев А.С., Маккамов Р.О., Садуакас А.Е., Еркинбаев Н.Н., Ханчи М.
АО «Национальный научный центр хирургии им. А.Н. Сызганова», г. Алматы, Казахстан

Автор для корреспонденции:
Баубеков А.А. *– сосудистый хирург, АО «Национальный научный центр хирургии им. А.Н. Сызганова». E-mail: baubekov81@mail.ru*

Конфликт интересов
Авторы заявляют об отсутствии конфликта интересов

Аннотация

Профилактика и лечение острых нарушений мозгового кровообращения является важнейшей медико-социальной проблемой, имеет большое социально экономическое значение. Для профилактики ишемического инсульта каротидная эндартерэктомия применяется с 1954 года (Eastcott H.H., 1954;DeBakey M.E., 1975), а каротидная ангиопластика и стентирование с середины 80-х гг. (Kerber R., 1980). Несмотря на значительное количество проведенных рандомизированных многоцентровых сравнительных исследований результатов каротидной эндартерэктомии и каротидного стентирования SAPPHIRE, CREST, CARESS, EVA-3S, SPACE – вопрос выбора оптимального метода хирургического лечения больных со стенозами сонных артерий в настоящее время окончательно не решен. В основу работы положен анализ результатов хирургического лечения 113 пациентов со стенозами сонных артерий, проходивших лечение в ННЦХ им. А.Н.Сызганова с 2015 по июнь 2020 года. Пациенты были разделены на две основные группы по методу лечения. В группе каротидной эндартерэктомии выполнено операций у 58 больных, в группе каротидного стентирования – 55 операции стентирования внутренней сонной артерии с церебральной протекцией у больных. Таким образом, в статистический анализ вошли результаты 113 случаев первичных операций. В заключении проведенной работы, были выработаны рекомендации по введению и выборе тактики введения пациентов, с цереброваскулярным атеросклерозом.

Ключевые слова
атеросклероз, каротидная эндартерэктомия, стентирование сонной артерии, ишемический инсульт

Topicality

Prevention and treatment of acute cerebral circulatory disorders is the most important medical and social problem and is of great social and economic importance. Carotid endarterectomy has been used for the prevention of ischemic stroke since 1954 (Eastcott H.H., 1954; DeBakey M.E., 1975), and carotid angioplasty and stenting since the mid-80s (Kerber R., 1980). (Kerber R., 1980) Prospective randomized multicenter NASCET, ECST and ACAS studies demonstrated the long-term effectiveness of carotid endarterectomy (CEE) in symptomatic and asymptomatic patients with severe carotid artery stenosis compared with conservative therapy. Due to these results, CEE has become the operation of choice subject to the standards developed by Stroke Council and American Heart Association in 1989 (Beebe H.G., 1989). These standards define the results, in which surgical treatment for clinically significant atherosclerotic stenoses of the internal carotid artery is in any case preferable for patients than conservative therapy.

Further, in the comparative studies of carotid angioplasty and stenting (CAS) and CEE, the first endovascular interventions on the carotid arteries using stents and protection systems were performed in patients with high risk of surgical treatment, where they proved the advantage over open surgery (Yadav J.S. et al., 2004). However, in the treatment of symptomatic patients, the best treatment results show carotid endarterectomy (Mas al., 2004). And a number of J.L. et researchers found that there are also risk factors for carotid stenting (Biasi G.M. et al., 2004).

Thus, in spite of a significant number of randomized multicenter comparative studies of the results of carotid endarterectomy and carotid stenting SAPPHIRE, CREST, CARESS, EVA-3S, SPACE, the issue of optimal surgical treatment of patients with carotid artery stenosis has not been finally resolved. Stenting is an alternative to endarterectomy for the treatment of carotid stenosis, but its long-term efficacy has not been determined. We present data comparing these treatments: 113 patients with symptomatic carotid stenosis from 2015 to 2020.

Materials and methods

The paper is based on the analysis of the results of surgical treatment of 113 patients with carotid artery stenoses treated at the A.N. Syzganov NSCS. A.N. Syzganov from 2015 to June 2020. The patients were divided into two main groups according to the method of treatment. In the carotid endarterectomy group 58 patients underwent operations, in the carotid stenting group - 55 operations of internal carotid artery stenting with cerebral protection in patients. Thus, the statistical analysis included the results of 113 cases of primary operations.

We applied the following criteria for inclusion of patients in the study.

Presence of carotid artery stenosis over 60% in combination with: previously suffered transient ischemic attacks or amaurosis fugas

Table 1
The ratio of patients in the CEE and CAS group by age, sex, number of main operations

Characteristic	CEE group	CAS group	P
Number of patients	58	55	–
Number of operations, n	58 (100%)	55 (100%)	–
Operations performed in men (%)	51 (87.9%)	50 (90.9%)	
Operations performed on women (%)	7 (12.0%)	5 (9.0%)	
Age, years	–	–	–
Middle $\pm m$	64,69±6,89	65,20±9,24	0,68
Range, years	49-78	39-82	–
Age up to 75 years	78 (90,7%)	73 (87,9%)	0.62
Age 75 and older (%)	8 (9,3%)	10 (12,1%)	0.62

m – standard deviation

dyscirculatory encephalopathy;

previous ischemic stroke;

presence of embolism-associated ASD;

presence of carotid artery stenosis over 70% in the absence of clinical manifestations of chronic cerebrovascular insufficiency and stable ASD.

Patients with: restenosis after previous carotid endarterectomy or carotid stenting, post-radiation carotid artery stenosis were excluded from the study;

predominant lesions of the vertebro-basilar basin (lesions of the vertebral and subclavian arteries);

previously performed extra-intracranial micro-anastomosis on the side of the occlusion;

severe heart rhythm disorders (atrial fibrillation, atrial fibrillation and ventricular flutter);

Severe respiratory insufficiency;

heart failure III-IV functional class.

Patients with contraindications to one of the treatment methods (acute coronary syndrome, hemodynamically significant tortuosity or kinking of the target carotid artery, pronounced atherosclerotic plaque calcification) were also excluded from the study.

To test the null hypothesis regarding patient homogeneity, we investigated differences in the compared groups by sex, age (Table 1), and concomitant pathology (Table 2) by t-criterion and Chi-square test (x2).

All patients were examined before surgery by neurologist and cardiologist, and if necessary by endocrinologist. The neurological status, the degree of chronic cerebrovascular insufficiency according to the classification of A.V. Pokrovsky (1979), and the severity of concomitant cardiovascular pathology (Table 2).

The Canadian Heart Association classification was used to assess the functional class of angina, the New York Heart Association classification was used for heart failure class, the Fontaine-Pokrovsky classification was used to assess the severity of chronic ischemia of the lower extremities.

Conclusions

1. The incidence and nature of cerebrovascular complications (stroke, transient ischemic attack) and cardiovascular complications (acute coronary syndrome, myocardial infarction) during carotid endarterectomy and carotid stenting in the immediate and long-term postoperative period did not significantly differ (p0,05).

2. For carotid endarterectomy, risk factors for cerebrovascular complications were contralateral occlusion in patients who had had a stroke less than 6 months earlier (p0.05) and age over 75 years in patients who needed a temporary intraluminal shunt (p0.05).

For carotid stenting, risk factors for cerebrovascular complications were hypoechogenic heterogeneous type of atherosclerotic plaque (p0.05) and atherosclerotic plaque surface ulceration (p0.05).

Table 2
Frequency of comorbidities in patients in the CEE and CAS groups

Associated disease	CEE group	CAS group	P
Ischemic heart disease (%)	51 (59,3%)	52 (62,6%)	0,94
FC angina pectoris 1 or 2 (%)	51 (59,3%	52 (62,6%	0,94
FC angina above 3 (%)	15 (17,4%)	21 (25,3%)	0,26
History of myocardial infarction (%)	12 (13,9%)	15 (18,1%)	0,53
Arterial hypertension (%)	58 (100%)	55 (100%)	0.99
Arrhythmias (%)	11 (12,7%)	15 (18,1%) j	0,39
Chronic ischemia of the lower extremities (%)	31 (36,1%)	34 (40,9%)	0,87
Type II diabetes mellitus (%)	12 (13,9%)	10 (12,0%)	0,82

3. A risk factor for the development of cardiovascular complications for carotid endarterectomy is the presence of initial functional class III angina (p0,05). No cardiovascular risk factors were found for carotid stenting.

4. Carotid endarterectomy and carotid stenting are effective methods for prevention and treatment of cerebral circulatory disorders in patients with carotid artery stenosis, and treatment results over 36 months do not differ significantly (p0,05).

5. Optimal conditions for carotid endarterectomy should be considered: in patients with previous stroke and carotid artery occlusion - more than 6 months after the previous stroke (late recovery period); in patients who require the use of a temporary internal shunt - age no older than 75 years; in patients with cardiac pathology - initial angina pectoris with functional class II or higher.

6. Optimal conditions for carotid stenting are an isoechogenic, homogeneous or heterogeneous hyperechogenic atherosclerotic plaque without surface ulceration.

References

1. Barrett KM, Brott TG. Stroke Caused by Extracranial Disease. Circ Res. 2017 Feb 3;120(3):496-501. doi: 10.1161/CIRCRESAHA.117.310138.
2. Silver FL, Mackey A, Clark WM, et al. CREST Investigators. Safety of stenting and endarterectomy by symptomatic status in the Carotid Revascularization Endarterectomy Versus Stenting Trial (CREST). Stroke. 2011 Mar;42(3):675-80. doi: 10.1161/STROKEAHA.110.610212. Epub 2011 Feb 9. PMID: 21307169;
3. Lovett JK, Coull AJ, Rothwell PM. Early risk of recurrence by subtype of ischemic stroke in population-based incidence studies. Neurology. 2004 Feb 24;62(4):569-73. doi: 10.1212/01.wnl.0000110311.09970.83. PMID: 14981172.
4. Carotid Stenting Trialists' Collaboration, Bonati LH, Dobson J, Algra A, et al. Short-term outcome after stenting versus endarterectomy for symptomatic carotid stenosis: a preplanned meta-analysis of individual patient data. Lancet. 2010 Sep 25;376(9746):1062-73. doi: 10.1016/S0140-6736(10)61009-4. Epub 2010 Sep 15.
5. Moresoli P, Habib B, Reynier P,et al.. Carotid Stenting Versus Endarterectomy for Asymptomatic Carotid Artery Stenosis: A Systematic Review and Meta-Analysis. Stroke. 2017 Aug;48(8):2150-2157. doi: 10.1161/STROKEAHA.117.016824. Epub 2017 Jul 5.
6. Gurm HS, Yadav JS, Fayad P, et al. SAPPHIRE Investigators. Long-term results of carotid stenting versus endarterectomy in high-risk patients. N Engl J Med. 2008 Apr 10;358(15):1572-9. doi: 10.1056/NEJMoa0708028.
7. Brott TG, Howard G, Roubin GS et al.CREST Investigators. Long-Term Results of Stenting versus Endarterectomy for Carotid-Artery Stenosis. N Engl J Med. 2016 Mar 17;374(11):1021-31. doi: 10.1056/NEJMoa1505215. Epub 2016 Feb 18.
8. Rosenfield K, Matsumura JS, Chaturvedi S, et al. ACT I Investigators. Randomized Trial of Stent versus Surgery for Asymptomatic Carotid Stenosis. N Engl J Med. 2016 Mar 17;374(11):1011-20. doi: 10.1056/NEJMoa1515706. Epub 2016 Feb 17.
9. Yadav JS, Wholey MH, Kuntz RE, et al. Stenting and Angioplasty with Protection in Patients at High Risk for Endarterectomy Investigators. Protected carotid-artery stenting versus endarterectomy in high-risk patients. N Engl J Med. 2004 Oct 7;351(15):1493-501. doi: 10.1056/NEJMoa040127.
10. Ederle J, Bonati LH, Dobson J, et al. CAVATAS Investigators. Endovascular treatment with angioplasty or stenting versus endarterectomy in patients with carotid artery stenosis in the Carotid and Vertebral Artery Transluminal Angioplasty Study (CAVATAS): long-term follow-up of a randomised trial. Lancet Neurol. 2009 Oct;8(10):898-907. doi: 10.1016/S1474-4422(09)70228-5. Epub 2009 Aug 28.

МРНТИ 76.29.39

CAROTID BODY TUMORS: SURGICAL TREATMENT AND PERIOPERATIVE RISK FACTORS OF ADVERSE EVENTS

Tajibayev T.K., Kamal M.B., Matkerimov A.Zh., Yenin E.A., Tergeussizov A.S., Baubekov A.A., Demeuov T.N., Zhakubaev M.A., Makkamov R.O., Saduakas A.Ye.,Erkinbayev N.N.
«A.N. Syzganov National Scientific Center for Surgery» JSC, Almaty, Kazakhstan

Tajibayev T.K.
orcid.org/0000-0002-9007-063X

Kamal M.B.
orcid.org/0000-0002-8210-0018

Matkerimov A.Zh.
orcid.org/0000-0001-8492-2958

Yenin E.A.
orcid.org/0000-0001-9450-0599

Tergeussizov A.S.
orcid.org/0000-0002-5069-4034

Baubekov A.A.
orcid.org/0000-0001-7197-4871

Demeuov T.N.
orcid.org/0000-0002-5897-2967

Zhakubaev M.A.
orcid.org/0000-0002-0376-3172

Makkamov R.O.
orcid.org/0000-0002-7222-1713

Saduakas A.Ye.
orcid.org/0000-0001-9213-2630

Erkinbayev N.N.
orcid.org/0000-0002-6104-3835

Corresponding author:
Tajibayev T.K. *– vascular surgeon, researcher, "A.N. Syzganov National Scientific Center for Surgery" JSC. E-mail: dr.tajibayev@gmail.com*

Conflict of interest
The authors declare that they have no conflicts of interest

Keywords
carotid body tumor; chemodectoma; neck paraganglioma; vascular formation; surgical treatment; neck surgery

Abstract

A carotid body tumor (CBT), also commonly known as nonchromaffin paragangliomas and chemodectomas, is a slowly growing neoplasm originating from carotid body chemoreceptors. ***Objectives:*** *To present the possible predictors of adverse events in the treatment of carotid body tumors.* ***Materials and methods.*** *The study was performed on basis of Scientific Central Surgery named after A.N. Syzganov. Only 8 patients with 8 tumors who underwent open surgical treatment of CBT over the past 10 years (from 2009 to 2019). Results. 6 (75%) patients had a painless mass in the neck, and 2 (25%) painful. According to the results of CTA and arteriography, the patients were classified according to the Shamblin classification (Figure 1), of which 1 patient had the I type of tumor (12.5%), type II in three (37.5%) and type III (50%) 4 patients, one (12%) of which revealed hemodynamically significant stenosis of bifurcation of the common carotid artery (CCA). The average number of days a patient was in the hospital stay increased direct proportional difference and the type of tumor. The time and approach of the operation, intraoperative blood loss, the volume of blood transfusion increased in the same way as the size of the tumor increased, involvement of the carotid artery and malignancy of the tumors. One patient had a cranial nerve injury (temporal), which resolved after additional treatment. Pathology results showed that two patients (25%) had malignant cells in the tumor and one of them located in the lymph nodes.* ***Conclusion****. A rare occurrence, slow growth, asymptomatic course and a limited amount of information on the detection and management of the disease lead to an underestimation of the condition. In addition, the large size of the tumor, the involvement of the carotid arteries and cranial nerves in the process directly affect the surgical approach and increase the risk of complications.*

Хемодектомалар: хирургиялық емдеу тәжірибесі және асқынулардың периоперативті қауіп факторлары

Таджибаев Т.К., Камал М.Б., Маткеримов А.Ж., Енин Е.А., Баубеков А.А., Демеуов Т.Н., Тергеусизов А.С., Жакубаев М.А., Маккамов Р.О., Садуакас А.Е., Еркінбаев Н.Н.
«А.Н. Сызғанов атындағы Ұлттық ғылыми хирургия орталығы» АҚ, Алматы қ., Қазақстан

Корреспонденция үшін автор:
Таджибаев Т.К. *– дәрігер-ангиохирург, ғылыми қызметкер, «А.Н. Сызғанов атындағы Ұлттық ғылыми хирургия орталығы» АҚ. E-mail: dr.tajibayev@gmail.com.*

Мүдделер қақтығысы
Авторлар мүдделер қақтығысының жоқтығын мәлімдейді

Аңдатпа

Хемодэктомалар, сонымен қатар хромаффинді емес параганглиомалар деп те аталады, бұл каротид синусының хеморецепторларынан шыққан баяу өсетін неоплазмалар. Параганглиомаларға 30 000 арасында мойын массасының шамамен 1-і кездеседі, оның ішінде 45%-ы хемодэктомалар. ***Жұмыстың мақсаты*** *ретроспективті талдау жүргізу және хемодэктоманың емдеудің хирургиялық тактикасын көрсету болды.* ***Материалдар мен тәсілдер.*** *Зерттеу А.Н.Сызғанов атындағы Ұлттық ғылыми хирургия орталығының ангиохирургия бөлімінде жүргізілді. Жалпы алғанда, соңғы 10 жыл ішінде (2009 жылдан 2019 жылға дейін) хемодекомамен хирургиялық емдеуден өткен 8 формациясы бар 8 пациенттің ауру тарихы зерттелді. Нәтижелер. 6 (75%) науқаста мойын аймағында ауырсынусыз ісік тәрізді түзіліс байқалды, 2 (25%) пациентте ауырсыну пайда болды. КТ ангиографиясының нәтижелері бойынша науқастар Шамблин ұсынған классификацияға сәйкес бөлінді, оның I*

типті ісігі бір науқаста (12,5%), II типте үшеуінде (37,5%) және III типте (50%)) 4 пациент болды, олардың біреуі (12,%) жалпы ұйқы артериясының бифуркациясының гемодинамикалық маңызды тарылуы болды. Науқастардың стационарда жатқан күндерінің орташа саны ісік мөлшері мен түріне тікелей пропорционалды түрде өсті. Ісік мөлшерінің ұлғаюымен, каротид артерияларының процеске араласуымен және түзілудің қатерлі ісіктерімен бірге жүргізілген операцияның көлемі, операцияның уақыты, қан жоғалту, қан құю көлемі де өсті. Операциядан кейінгі кезеңде бірнеше рет араласқан бір пациенттің уақытша жұтылу бұзылысы болды, ол физиотерапияны қолданғанда симптомдар жойылды. Гистологияның нәтижелері көрсеткендей, екі пациенттің (25%) қатерлі жасушалары бар болды, олардың біреуі лимфа түйіндеріне метастаздармен. ***Қорытынды.*** *Операцияға дейінгі кезеңде пациенттің жағдайын және ықтимал көпсалалы тәсілі бар науқастың қосарланған фонын, әсіресе Шамблин классификациясы бойынша III типті науқастарда толық бағалау жүргізу ұсынылады. Сирек пайда болу, баяу өсу, асимптоматикалық ағым және ауруды анықтау туралы шектеулі ақпарат жағдайды бағаламауға әкеледі. Ісіктің үлкен мөлшері болған кезде, ұйқы артериялары мен бас сүйек нервтерінің қатысуы хирургиялық тәсілге тікелей әсер етеді және асқыну қаупін арттырады.*

Түйін сөздер
хемодектома; каротидті параганглиома; мойын ісіктері; тамырлы түзілімдер; хирургиялық ем; мойын хирургиясы

Хемодектомы: опыт хирургического лечения и периоперативные факторы риска осложнений

Таджибаев Т.К., Камал М.Б., Маткеримов А.Ж., Енин Е.А., Баубеков А.А., Демеуов Т.Н., Тергеусизов А.С., Жакубаев М.А., Маккамов Р.О., Садуакас А.Е., Еркинбаев Н.Н.
АО «Национальный научный центр хирургии им. А.Н. Сызганова», г. Алматы, Казахстан

Автор для корреспонденции:
Таджибаев Т.К. *– врач-ангиохирург, научный сотрудник АО «Национальный научный центр хирургии им. А.Н. Сызганова». E-mail: dr.tajibayev@gmail.com*

Конфликт интересов
Авторы заявляют об отсутствии конфликта интересов

Аннотация

Хемодектомы, так же широко известные как нехромафинные параганглиомы, это медленно растущие новообразования, происходящие из хеморецепторов каротидного синуса. Приблизительно 1 из 30000 образований головы и шеи соответствует параганглиоме, 45% из которых являются хемодектомами. ***Целью*** *работы было провести ретроспективный анализ и показать опыт нашего центра в менеджменте и хирургической тактике лечения хемодектом.* ***Материалы и методы.*** *Исследование проводилось на базе отделения ангиохирургии Национального Научного Центра хирургии имени А.Н. Сызганова. Всего ретроспективно были изучены истории болезни 8 пациентов с 8 образованиями, перенесших оперативное лечение хемодектом за последние 10 лет (с 2009 по 2019 годы). Результаты. У 6(75%) пациентов отмечалось безболезненное опухолевидное образование в области шеи, у 2(25%) болезненное. По результатам КТ-ангиографии пациенты были распределены по классификации, предложенный автором Shamblin, из которых I тип опухоли был у одного пациента (12,5%), II тип у троих (37,5%) и к III (50%) типу относились 4 пациента, у одного (12,%) из которых было выявлено гемодинамически значимое сужение бифуркации общей сонной артерии. Среднее число дней нахождения пациентов в больнице повышалась прямопропорционально размеру и типу опухоли. Объем проведенной операции, время операции, интраоперационная кровопотеря, объем гемотрансфузии повышались так же по мере увеличения размеров опухоли, вовлечения в процесс сонных артерий и злокачественности образования. В послеоперационном периоде у одного пациента с повторным вмешательством было временное нарушения глотания, которые с применением физиолечения симптомы были разрешены. Результаты гистологии показали, что у двоих пациентов (25%) были обнаружены злокачественные клетки, у одного из них с метастазами в ближайшие лимфоузлы.* ***Заключение.*** *В предоперационном периоде рекомендуется провести полную оценку состояния пациента и коморбидного фона пациентка с возможным мультдисциплинарным подходом, в особенности у пациентов с III типом по классификации Shamblin. Редкая встречаемость, медленный рост, бессимптомное течение и ограниченный объем информации по выявлению заболевания приводят к недооценке состояния. Тогда как большие размеры опухоли, вовлечение в процесс сонных артерий и черепно-мозговых нервов напрямую влияют на хирургический подход и увеличивают риск осложнений.*

Ключевые слова
хемодектома; каротидная параганглиома; образования шеи; сосудистые образования; хирургическое лечение; хирургия шеи

Introduction

A carotid body tumor (CBT), also commonly known as nonchromaffin paragangliomas and chemodectomas, is a slowly growing neoplasm originating from carotid body chemoreceptors [1,2]. It occurs in 0.5 - 0.5% of cases of head and neck zone formations [3,4]. About 1 in 30,000 head and neck formations corresponds to a paraganglioma, 45% of which are CBT. It was found that bilateral location occurs in 5% of sporadic cases, while in family cases the percentage of CBT on both sides reaches 30% [5]. The frequency of occurrence in women is 2.5-3 times higher than in men [4.6]. CBT occurs at any age, but is usually diagnosed between the third and sixth decades of life [7].

Malignant chemodectomas are observed in 15–20% of patients [8]. In various observations, from 2–9%, the carotid chemodectoma can be malignant with the formation of metastases [8]. The presence of metastases to the lymph nodes, as well as the presence of distant metastases, indicates a malignant nature of the tumor and has an unfavorable prognosis [9]

The first anatomical mention of a carotid glomus tumor was made by Albercht von Haller in 1743 [10]. The first attempt at surgical removal of a chemodectoma was made by Reigner in 1880, which culminated in the death of the patient [11]. In 1886, Maydl first performed a successful operation to remove a chemodectoma, with a subsequent complication in the form of aphasia and hemiparesis [12]. The first operation to remove the tumor with the preservation of the internal carotid artery and without the development of complications was performed in the USA by Scudder in 1903 [13]. Since 1970, with the development of cardiovascular surgery technologies, the widespread introduction of neuroimaging methods, the mortality rate due to surgical removal of a chemodectoma has been less than 10% [14.15].

Treatment is primarily based on surgical removal. A significant role in the choice of surgical treatment approaches was played by a study by a group of authors Shamblin et al, who proposed their CBT classification based on carotid artery involvement. The first group is CBT without involvement of the carotid arteries, in this position it is easy to remove the tumor from the vessels, the second group has partial involvement of the vessels, in this category partial excision of external layer of the artery is possible, the third group has complete involvement of the vessels and transmural invasion of the tumor, in this case, tumor resection is required along with the carotid arteries due to the inability to separate them from each other [16].

Despite the fact that monitoring of undesirable consequences during surgery, improvement of surgical technique and postoperative monitoring yielded results and reduced the risk of mortality closer to zero, the percentage of postoperative neurological complications remains high and reaches from 10 to 40%. However, due to the locally invasive nature of CBT, the surgical approach is still effective [17-21]. Along with surgical treatment in the literature, there are publications by authors suggesting transarterial embolization (TAE) in the preoperative period, which will reduce the risk of complications [22,23].

Objectives

To present the possible predictors of adverse events in the treatment of carotid body tumors.

Materials and methods

The study was conducted on the basis of the Department of Vascular surgery of the National Scientific Center of Surgery named after A.N. Syzganov. In total, case histories of 8 patients with 8 formations undergoing open surgical treatment of CBT over the past 10 years (from 2009 to 2019) were retrospectively studied. After signing the informed consent, the patients were invited for examination and questionnaire, including complaints, family history, diagnostic tests, type of treatment and others. The search for relevant literature was carried out in the databases Web of Knowledge, Scopus, PubMed, Google scholar, Cochrane Library. Collection of all patient data, statistical calculations were performed using Microsoft Excel.

Table 1. Main characteristics of patients

Features of patient	Mean or No (%)
Age, (years)	45,4±12,6 (range 31-73)
Gender male/female (n)	2(25)/6(75)
Presentation	
• Painless lump	6(75)
• Painful lump	2(25)
• Dysphagia	1(12.5)
• Horner's syndrome	1(12.5)
• Headache	4(50)
• Stroke/TIA	0/0
• Arterial hypertension	3(37.5)
• Previous operation	2(25)
• Family history	0(0)
• Thyroid neoplasm	1(12.5)
Preoperative imagine	
• Ultrasound	8(100)
• CTA	5(62.5)
• Angiography	8(100)
Shamblin classification	
• Type I	1(12.5)
• Type II	3(37.5)
• Type III	4(50)

TIA, transient ischemic attack; CTA, computed tomography angiography.

Results

The total number of patients was 8, of which 6 (75%) were women, the average age was 45.4 years, and none of them had bilateral lesions. Genetic tests for the SDH gene mutation have not been conducted, but there was no familial CBT in medical history. 6 (75%) patients had a painless tumor formation in the neck, and 2 (25%) painful. It was noted that the latter had larger tumor sizes compared with asymptomatic patients, and one of them underwent CBT excision surgery 8 years ago. 3 (37.5%) patients complained of an increase in blood pressure to 140/90 mm Hg. One patient had a thyroidectomy for thyroid cancer 1 year ago. All patients underwent ultrasound duplex angioscanning, computed tomography with angiography of blood vessels (6) according to indications, as well as angiography of carotid arteries (Table 1).

According to the results of CTA and angiography, patients were classified according to the Shamblin classification (Figure 1), of which type I tumor was in one patient (12.5%), type II in three (37.5%) and type III (50%) 4 patients were treated, in one (12%) of which hemodynamically significant narrowing of bifurcation of the common carotid artery (CCA) was revealed. Also, blood serum was taken from all patients for routine laboratory tests (blood test, biochemistry, blood coagulation function, lipid profile). Laboratory test results did not reveal clinically significant changes.

After the distribution of patients into groups, a comparative analysis of the perioperative parameters of the patients was carried out (Table 2). Thus, the average number of days a patient was hospitalized increased in direct proportion to the size and type of tumor.

In addition, we performed several types of surgical treatment (Figure 2). As shown in the above table, the volume of the operation, the time of the operation, intraoperative blood loss, the volume of blood transfusion increased in the same way as the size of the tumor increased, involvement of the carotid arteries and malignancy of the formation.

In the postoperative period, one patient with repeated intervention had temporary swallowing disorders, which, with the use of physiotherapy, the symptoms were resolved.

Pathology results showed that two patients (25%) had malignant cells, one of them with metastases to the nearest lymph nodes. Patient data were subsequently referred to oncologists and radiation therapy courses were applied to them in the affected area. The average follow-up for these patients was 1 year. There were no other complications such as cerebrovascular disturbances (stroke, TIA) and death.

Discussion

CBT usually manifests itself as a painless, slowly growing neck formation, laterally to the apex of the hyoid bone [24]. Sometimes the patient complains of hoarseness, dysphagia and even less often dizziness and coughing may occur as a result of compression on the vagus or sympathetic nerves [25]. In our study, only one patient had symptoms of grade 1 dysphagia, which was presumably due to the large size of the tumor (8.0 x 6.5 cm).

As a rule, the asymptomatic course of the disease in the initial stage and the slow growth of CBT can underestimate the condition and late treatment

Figure 1.
31-year-old woman with CBT on the right: A - Computed tomography: formation of the right neck with dimensions 5.0x4.0 cm; B - arteriography: there is a hypervascular formation in the area of bifurcation of the right common carotid artery

Table 2.
Distribution of patients according to Shamblin classification

	Type I	Type II	Type III
Hospital stay, mean (days)	8±0	11,3±2,2	12,6±3,8
Tumor size, mean (cm)	4±0	5,3±1,54	6,3±2,8
Side, left/right	0/1	1/2	3/1
Bilateral	0	0	0
Type of excision			
• Excision with ligation of ECA	0	1	1
• Excision without ligation	1	0	0
• Excision and patch repair	0	2	2
• Excision and prosthesis with graft (vein)	0	0	1
• Excision with ligation of CCA	0	0	0
• Operation time, mean (min)	78±0	155±42,2	189,5±31,5
• EBL, mean (ml)	200±0	382±68,4	443±79,2
• Blood transfusion, mean (ml)	0	304±127,3	488,5±201,3
Complications			
• Hematoma	0	0	0
• Wound infection	0	0	0
• Horners syndrome	0	0	0
• Dysphagia	0	0	1
• Cranial nerve injury	0	0	1
• Stroke/TIA	0/0	0/0	0/0
• Death	0	0	0
Pathology			
• Benign CBT	1	3	2
• Malignant CBT without metastases	0	0	1
• Metastases to lymph nodes	0	0	1

ECA, external carotid artery; CCA, common carotid artery; EBL, estimated blood loss; TIA, transient ischemic attack; CBT, carotid body tumor.

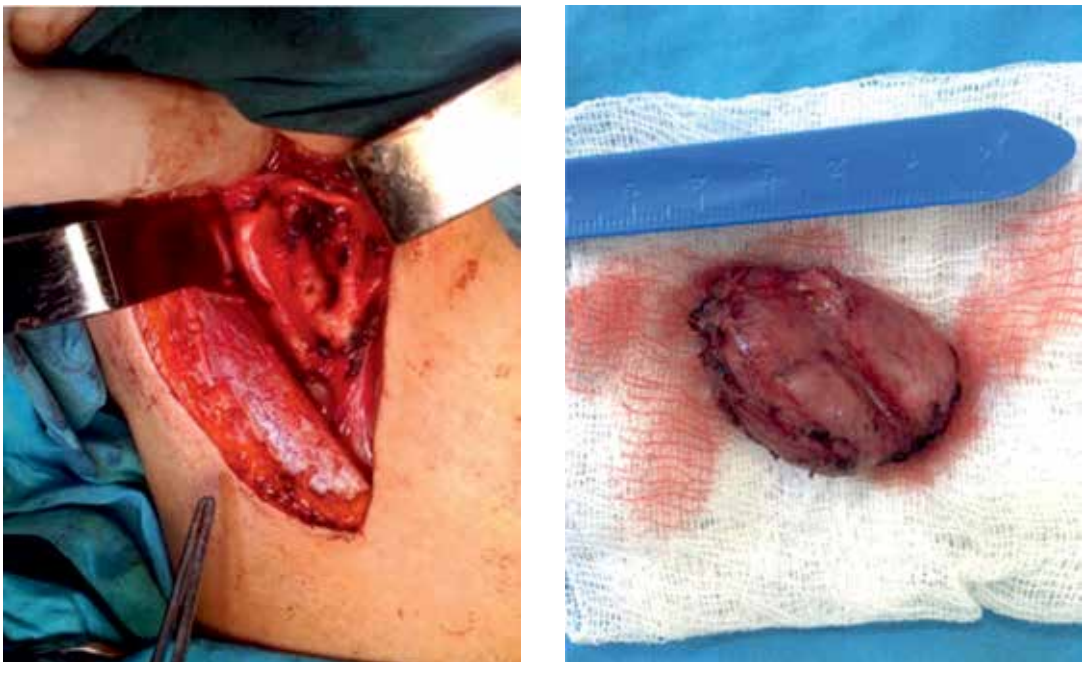


Figure 2.
31-year-old woman with CBT on the right: A - Intraoperative view of the carotid bifurcation after removal of CBT; B – View of formation after excision

of patients. So, in our center there was only one case with the first type of tumor according to the Shamblin classification, while the third type was in half of the patients (4), although many of them noted the presence of a tumor-like formation in the neck area was sick for 10 years. Moreover, in 5 out of 8 patients, the average education size was more than 5 cm, and in two patients a malignant chemodectoma was revealed according to the results of histology.

Currently, the Shamblin classification system, which is based on the degree of involvement of the adjacent carotid arteries, is used to assess the risk of intraoperative bleeding and damage to cranial nerves and can indicate the potential need for resection of the carotid artery with revascularization [26].

Also in the literature is the work of Kim et al, who offer new predictors of complications of CBT resection. The study is based on measuring tumor volume and distance from the base of the skull (DTBOS) in conjunction with the Shamblin score [27]. According to the results of the study, each 1 cm decrease in DTBOS is associated with a 1.8-fold increase in the risk of blood loss> 250 ml by a factor of 1.8 (CI 95%, 1.25-2.55) and a 1.5-fold increase in the risk of cranial nerve damage (CI 95%, 1.19-1.92). In our study, the assessment was carried out only according to the Shamblin classification.

The prolonged existence of even a benign tumor poses a threat of stenosis of the larynx, trachea, esophagus, involvement of the cranial nerves and great vessels of the neck with impaired cerebral circulation, and its spread into the cranial cavity. Surgical resection is recommended for all CBT due to the risk of local complications associated with tumor size and malignancy [22,28,29].

Conclusion

Despite the small number of patients analyzed at our center, we came to some important conclusions and developed steps to reduce the risk of complications.

In the preoperative period, it is recommended to conduct a full assessment of the patient's condition and the patient's comorbid background with the involvement of the necessary specialists. We also recommend preparing a dose of blood for transfusion, mainly in patients with types II and III according to the Shamblin classification. For these patients, it is recommended to perform ultrasound scanning of the great saphenous vein in order to determine the "suitability" of the venous graft for prosthetics. In the case of a decision to resect the carotid artery or when there are prerequisites for prolonging the time of surgery, it is recommended to establish a temporary intravascular shunt (TIVS) in order to reduce the risk of cerebral ischemia. In case of detection of malignant cells in a tumor or neighboring lymph nodes, it is recommended that an oncologist is monitored immediately after surgery for the possibility of radiation or chemotherapy. After surgery, it is recommended that the patient is monitored at the ICU to monitor blood pressure and function of vital organs. For patients who underwent excision of the tumor with resection and subsequent prosthetics, or excision of the vessel wall with patching, it is recommended to perform ultrasound for the first 48 hours, as well as monitoring the patient's neurological status after waking up. We recommend that you allow the patient to drink water after waking up in small sips strictly in the presence of a doctor in order to determine possible damage to the cranial nerve.

Thus, the rare occurrence, slow growth, asymptomatic course and a limited amount of information on the detection and management of the disease lead to an underestimation of the condition. In addition, the large size of the tumor, the involvement of the carotid arteries and cranial nerves in the process directly affect the surgical approach and increase the risk of complications.

References

1. Lack E, Cubilla A, Woodruff J, Farr H. Paragangliomas of the head and neck region. Cancer 1977;39:397–409
2. Pryse-Davies J, Dawson I, Westbury G. Some morphologic, histochemical and chemical observations on chemodectomas and the normal carotid body, including a study of the chromaffin reaction and possible ganglion cell elements. Cancer 1964;17:185–201
3. Green J., Olsen K.D., De Santo L., Scheithauer B. Neoplasms of the vagus nerve. Laryngoscope. 1998; 98: 648–654
4. Nidia Y., Luis E., Francisco J. Mutation of SDHB is a Cause of Hypoxia-Related High-Altitude Paraganglioma. Clin. Cancer. Res. 2010; 16 (16): 4148–4154
5. Parry D, Li F, Carney JA, Schottenfield D, Reimer R, Grufferman S. Carotid body tumors in humans: genetics and epidemiology. J Natl Cancer Inst 1982;68:573–8
6. Power A. H., Bower T. C., Kasperbauer J., Link M. J., Oderich G., Cloft H. et al. Impact of Preoperative Embolization on Outcomes of Carotid Body Tumor resections. J. Vasc. Surg. 2012; 56: 979–989
7. Ward PH, Jenkins HA, Hanafee WN. Diagnosis and treatment of carotid body tumors. Ann Otol Rhinol Laryngol 1978;87:614-21
8. Wang S.J., Wang M.B., Barauskas T.M., Calcaterra T.C. Surgical management of carotid body tumors. Otolaryngol Head Neck Surg 2000;123:202–6
9. Pryse-Davies J., Dawson I.P., Westbury G. Some morphologic, histochemical, and chemical observations on chemodectomas and the normal carotid body, including a study of the chromaffin reaction and possible ganglion cell elements. Cancer 1964:17:185–202
10. Mitchell R.O., Richardson J.D., Lamberth G.E. Charecteristics, surgical management and outcome in 17 carotid body tumor. Am Surg 1996;62:1034–7
11. Lahey F.M., Warren K.V. Tumor of carotid body. Surg Gynecol Obstet 1947; 85:281–8
12. Byrne J.J. Carotide body and allied tumor. Am J Surg 1958;95:371–84

13. Scudder C.L. Tumor of the inter carotid body. A report of one case, together with one case in the literature. Am J Med Sci 1903;126:384–9
14. McPhersen G.A., Hallyday A.W., Mansfield A.O. Carotid body tumor and other paragangliomas: diagnosis and management in 25 pations. Br J Surg 1989;76:33–6
15. Robison J.G., Shagets F.V., Becket W.C., Spies J.B. A multidisciplinary approach to reducing morbidity and operative blood loss during resection carotid body tumor. Surg Gynicol Obstet 1986;168:166–70
16. Shamblin WR, ReMine WH, Sheps SG, Harrison EG Jr. Carotid body tumor (chemodectoma): clinicopathologic analysis of ninety cases. Am J Surg 1971;122:732-9
17. Williams MD, Phillips MJ, Rainer WG. Carotid body tumor. Arch Surg 1992;127:963-8
18. Nora JD, Hallett JW Jr, O'Brien PC, Naessens JM, Cherry KJ, Pairolero PC. Surgical resection of carotid body tumors: long-term survival, recurrence, and metastasis. Mayo Clin Proc 1988;63:348-52
19. Daudi FA, Thurston OG. Carotid body tumours: the University of Alberta experience. Can J Surg 1989;32:159-61
20. Bemard RP. Carotid body tumors. Am J Surg 1992;163:494-6
21. Muhm M, Polterauer P, Gstottner W, Temmel A, Richling B, Undt G, et al. Diagnostic and therapeutic approaches to carotid body tumors. Arch Surg 1997;132:279-84
22. Li J, Wang S, Zee C, Yang J, Chen W, Zhuang W, et al. Preoperative angiography and transarterial embolization in the management of carotid body tumor: a single-center, 10-year experience. Neurosurgery 2010;67:941-8
23. Makeieff M, Raingeard I, Alric P, Bonafe A, Guerrier B, Marty-Ane C. Surgical management of carotid body tumors. Ann Surg Oncol 2008; 15:2180-6
24. Woolen S, Gemmete JJ. Paragangliomas of the head andneck. Tinnitus Imaging Endovasc Surg Approaches 2016;26:259e78
25. Werter I, Rustemeijer C. Head and neck paragangliomas. Land Double-Blind Stud Case Rep King 2013;500:508
26. Lim JY, Kim J, Kim SH, Lee S, Lim YC, Kim JW, et al. Surgical treatment of carotid body paragangliomas: outcomes and complications according to the Shamblin classification. Clin Exp Otorhinolaryngol 2010;3:91-5
27. Kim et al. New predictors of complications in carotid body tumor resection. Journal of Vascular Surgery 2017 Volume 65, Number 6 ;: 1673-1678
28. Hallett JW Jr, Nora JD, Hollier LH, Cherry KJ Jr, Pairolero PC. Trends in neurovascular complications of surgical management for carotid body and cervical paragangliomas: a fifty-year experience with 153 tumors. J Vasc Surg 1988;7:284

MODERN VIEW ON THE PROBLEM OF ANTIBIOTIC RESISTANCE IN CHILDREN. CAUSES OF ANTIBIOTIC RESISTANCE

МРНТИ 76.29.47

Shirtaev B.K.[1], Yerimova N.Zh.[1], Sundetov M.M.[1], Kurbanov D.R.[1], Khalykov K.U.[1], Akilbekov S.D.[2], Alkhanov B.A.[1], Kokimbayev D.A.[1], Kanazov A.K.[1], Baimakhanov B.B.[1], Chormanov A.T.[1]
[1]«A.N. Syzganov National Scientific Center for Surgery» JSC, Almaty, Kazakhstan
[2]Al-Farabi Kazakh National University, Almaty, Kazakhstan

Shirtaev B.K.
orcid.org/0000-0002-0773-3878

Yerimova N.Zh.
orcid.org/0000-0002-0565-5327

Sundetov M.M.
orcid.org/0000-0002-0387-5422

Kurbanov D.R.
orcid.org/0000-0002-0426-9387

Khalykov K.U.
orcid.org/0000-0003-1266-697X

Akilbekov S.D.
orcid.org/0000-0003-4613-1658

Alkhanov B.A.
orcid.org/0000-0001-6543-0712

Kokimbayev D.A.
orcid.org/0000-0001-7879-3328

Kanazov A.K.
orcid.org/0000-0002-6032-3085

Baimakhanov B.B.
orcid.org/0000-0002-9839-6853

Chormanov A.T.
orcid.org/0000-0003-3513-1935

Corresponding author:
Yerimova N.Zh. *- MD, pediatrician, "A. N. Syzganov National Scientific Center for Surgery" JSC.*
E-mail: nazier1611@gmail.com

Conflict of interest
The authors declare that they have no conflicts of interest

Keywords
antibiotic resistance, analysis of the results

Abstract

Purpose: *The aim of this work is to study antibiotic resistance in children before and after surgery.*

Antibiotic resistance is a topic of concern to all mankind today. These days, the "craze" for antibiotics has become like an epidemic and today, antibiotic resistance is a global problem. This article examines the causes of antibiotic resistance, discusses in detail the necessary measures, provides data from the world literature on the importance of this problem in the health sector, the existing mechanisms of the emergence of resistance of pathogenic microorganisms to antibacterial drugs and forms of acquired resistance.

Балалардағы антибиотиктерге төзімділік мәселелеріне заманауи көзқарас. Антибиотиктерге төзімділіктің себептері

Ширтаев Б.К.[1], Еримова Н.Ж.[1], Сундетов М.М.[1], Курбанов Д.Р.[1], Халықов Қ.Ұ.[1], Акильбеков С.Д.[2], Алханов Б.А.[1], Көкімбаев Д.А.[1], Каназов А.К.[1], Баймаханов Б.Б.[1], Чорманов А.Т.[1]
[1]«А.Н. Сызғанов атындағы Ұлттық ғылыми хирургия орталығы» АҚ, Алматы қ., Қазақстан
[2]Әл-Фараби атындағы Қазақ Ұлттық университеті, Алматы қ., Қазақстан

Корреспонденция үшін автор:
Еримова Н.Ж. *– педиатр, «А.Н. Сызғанов атындағы Ұлттық ғылыми хирургия орталығы» АҚ.*
E-mail: nazier1611@gmail.com

Мүдделер қақтығысы
Авторлар мүдделер қақтығысының жоқтығын мәлімдейді

Түйін сөздер
антибиотикке төзімділік, нәтижелерді талдау

Аңдатпа

Мақсаты: *бұл жұмыстың мақсаты отаға дейінгі және отадан кейінгі кезеңдегі балалар арасында антибиотикке төзімділікті зерттеу.*

Антибиотикке төзімділік бүгінде бүкіл адамзатты толғандыратын тақырып. Қазіргі уақытта антибиотиктерге «құмарлық» эпидемияға ұқсас және бүгінгі күні антибиотикке төзімділік жаһандық мәселе болып табылады. Бұл мақалада антибиотикке төзімділіктің себептері талданып, дүниежүзілік әдебиет деректеріне негізделген мәселенің маңыздылығы, патогендік микроорганизмге қарсы препараттарға төзімділігінің пайда болуы туралы мәліметтер келтірілген.

Современный взгляд на проблему антибиотикорезистентности у детей. Причины антибиотикорезистентности

Ширтаев Б.К.[1], Еримова Н.Ж.[1], Сундетов М.М.[1], Курбанов Д.Р.[1], Халыков К.У.[1], Акильбеков С.Д.[2], Алханов Б.А.[1], Кокимбаев Д.А.[1], Каназов А.К.[1], Баймаханов Б.Б.[1], Чорманов А.Т.[1]

[1]АО "Национальный научный центр хирургии им. А.Н. Сызганова", г. Алматы, Казахстан
[2]Казахский национальный университет им. Аль-Фараби, г. Алматы, Казахстан

Автор для корреспонденции:
Еримова Н.Ж. *– врач-педиатр, АО «Национальный научный центр хирургии им. А.Н. Сызганова». E-mail: nazier1611@gmail.com*

Конфликт интересов
Авторы заявляют об отсутствии конфликта интересов

Аннотация

Цель: *Целью настоящей работы является изучение антибиотикорезистентности среди детей до и в послеоперационном периоде.*

Антибиотикорезистентность – тема, волнующая сегодня все человечество. В наши дни «увлечение» антибиотиками стало подобно эпидемии и на сегодняшний день антибиотикорезистентность является глобальной проблемой. В данной статье разобраны причины антибиотикорезистентности, подробно обсуждены необходимые меры, приведены данные мировой литературы о значимости данной проблемы в сфере здравоохранения, существующих механизмах возникновения устойчивости патогенных микроорганизмов к антибактериальным препаратам и форм приобретенной резистентности.

Ключевые слова
антибиотикорезистентность, анализ результатов

Introduction

Modern medicine is unthinkable without antibiotic therapy. Antibiotics have significantly reduced the mortality rate from infectious diseases, softened the severity of their course, and reduced the number of post-infectious complications. However, despite the appearance in the arsenal of doctors of a significant list of drugs that are active against almost all pathogenic microorganisms, there are a significant number of problems and unresolved issues in the field of antibiotic therapy. Problem of resistance is largely due to the widespread and often irrational use of these drugs. Infections caused by resistant strains of microorganisms are characterized by a more severe course, more often require hospitalization of the patient, increase the duration of his hospital stay, and requires the use of combined antimicrobial therapy using reserve drugs. All this leads to an increase in treatment costs, worsens the prognosis for the health and life of patients, and also creates conditions for the emergence of epidemics.

Materials and methods

Since March 2016, 32 liver transplants from a living related donor have been performed in children. The age of the patients ranged from 6 months to 8 years. Of these, 23 (78.1%) patients with biliary atresia, 2 (6.2%) with cirrhosis of the liver in the outcome of autoimmune hepatitis, 1 (3.1%) with primary hyperoxaluria, 1 (3.1%) with cholangiocarcinoma, 1 (3,1%), 1 (3,1%) with inoperable hepatoblastoma, 1 (3.1%) cirrhosis of the liver in the outcome of viral hepatitis C on the background of Langerhans cell histiocytosis. The number of girls was 17 (53.1%) and boys 15 (46.9%). The 5-year liver transplant survival rate was 75%. There was a 100% antibiotic intake in the preoperative period, including the primary health care level, district and city hospitals. 5 (15.6%) children with Klebsiella sepsis and with a fatal outcome were resistant to all groups of antibacterial drugs.

According to the treatment protocol No. 33, approved by the Joint Commission on the Quality of Medical Services of the Ministry of Health of the Republic of Kazakhstan dated November 28, 2017, from the day of the surgical treatment, all children received three-component antimicrobial therapy - a group of broad-spectrum penicillins with a beta-lactamase inhibitor (piperacillin tazobactam), an antibiotic of the chloramphenicol group (chloramphenicol) and an antiprotozoal drug with antibacterial activity (metronidazole). Antifungal therapy was carried out according to the results of microbiological studies.

Statistics and Results

During the analysis, we obtained the following data:

Klebsiella (pneumonie, species, ozaenae, oxytoxa) - 8 cases (25%) before surgical treatment, after 10 cases (31.25%). Resistant to a large number of drugs - to amoxiclav, levofloxacin, meropenem, pefloxacin, cefazolin, cefepime, ceftriaxone, cefuroxime, cefotaxime, ertapenem, ciprofloxacin, amoxclave, levofloxacin, meropenem, piperacillin, cefazolin, cefepime, cefotaxime, ceftriaxone, ertapenem, gentamicin, imipenem, ciprofloxacin.

There are 5 (15.6%) cases of Staphylococcus aureus before surgery and 5 (15.6%) cases after surgery. Also they are resistant to amoxiclav, levofloxacin. meropenem, cefazolin, ceftriaxone, cefuroxime, azithromycin, gentamicin, ciprofloxacin, erythromycin-clindamycin.

There are 11 (34.3%) cases of Staphylococcus epidermiditis before surgery and 2 (6.25%) cases after surgery. They are resistant to azithromycin, amoxiclav, erythromycin, cefazolin, ceftriaxone, cefuroxime, cefotaxime, pefloxacin, gentamycin, azithromycin, clindamycin.

There are 4 (12.5%) cases of Streptococcus viridans before surgery and 2 (6.25%) cases after surgery. They are resistant to azithromycin, clindamycin, cefotaxime, azithromycin, clindamycin, erythromycin, vancomycin, ceftriaxone, cefuroxime, cefazolin, amoxiclav, azithromycin, erythromycin, pefloxacin.

There are 4 cases (12.5%) of E. Coli and 1 (3.1%) case after surgery. They are resistant to tobramycin, cefuroxime, cephazoline, cefotaxime, ceftriaxone, norfloxacin, pefloxacin, cefazolin, ceftriaxone, cefepime, cefotaxime, ciprofloxacin.

There are 4 (12.5%) cases of Enterobacter cloacae, aerogenes before surgery and 1 (3.1%) case after surgery. They are resistant to cefazolin, cefepime, cefotaxime, ceftriaxone, cefuroxime, gentamicin, cefotaxime, ceftriaxone, levofloxacin, ertapenem, pefloxacin, cefuroxime, ciprofloxacin.

There are 7 (21.8%) cases of Streptococcus pyogenes before surgery and 3 (9.3%) cases after surgery. They are resistant to ciprofloxacin, levofloxacin, erythromycin, azithromycin, pefloxacin, clindamycin, amoxiclav, amikacin, imipenem, meropenem, cefuroxime, ceftriaxone, cefazolin, cefepim, pseflamypotaximemu.

There is 1 case (3.1%) of Pseudomonas aeruginosa before surgical treatment. They are resistant to cefuroxime, pefloxacin, cefazolin.

There are 7 cases (21.8%) of Candida albicans before surgery and 4 cases (12.5%) after surgery. They are resistant to ketocanazole, flucanazole, clotrimazole.

Discussion

Thus, the problem of resistance is largely due to the widespread and often irrational use of these drugs. Infections caused by resistant strains of microorganisms are characterized by a more severe course, more often require hospitalization of the patient, increase the duration of his hospital stay, and requires the use of combined antimicrobial therapy using reserve drugs. All this leads to an increase in treatment costs, worsens the prognosis for the health and life of patients, and also creates conditions for the emergence of epidemics.

Everyone knows that the unjustified use of antibiotics not only increases the cost of treatment and creates the risk of side effects, but also leads to an increase in the resistance of microorganisms. This problem is global and it depends on its solution whether humanity will be able to effectively fight bacterial infection in the future. Unfortunately, today there are many cases of inappropriate use of antibiotics in pediatrics and the reasons why doctors prescribe antibiotics when they are not needed.

According to the European Centre for Disease Control (ECDC, 2016), the resistance of Klebsiella pneumoniae, the causative agent of the most severe bacterial lung lesions in humans, increased from 6.2 to 8.1%, in just three years (from 2012 to 2015) and this resistance is noted at once to several groups of antibiotics [1]. In this case, we are talking specifically about combined resistance, for example, to carbapenems and colistin, which is an extremely alarming signal, meaning that doctors have practically no money left to actually save the patient. In addition, an unpleasant tendency is observed in the antibiotic resistance of E. coli, which is also a common cause of various infectious complications. This is evidenced by the results of public opinion polls conducted recently in 12 countries (Barbados, Vietnam, Egypt, India, Indonesia, China, Mexico, Nigeria, Russian Federation, Serbia, Sudan, South Africa), published on the WHO website [2]. Having interviewed about 10,000 people in order to reveal their knowledge of antibiotic therapy, antibiotic resistance and their possible consequences for humans, the authors received unexpected results. It turned out that humanity is dominated by myths: 2/3 of the respondents have generally heard about antibiotic resistance, but 76% of them believe that it develops as an individual "addiction" of the body of a particular patient to a particular antibiotic; another 66% - that if the patient follows the doctor's instructions, then he is immune to insensitive microbes, 44% associate the problem of antibiotic resistance only with those patients who take antimicrobial drugs on a regular basis. Of course, these facts are very clear evidence of how important and relevant educational work with the population regarding compliance with the rules for taking antibiotics and curbing antibiotic resistance. By the way, the infectious morbidity in the CIS countries with many infectious diseases continues to increase [3]. In 2016, the incidence of rubella significantly increased (in 2.8 times compared to the previous year), mumps (1.9 times), whooping cough (1.9 times) and Q fever (4 times). The incidence of salmonellosis increased by 14.7%, intestinal infections of unknown etiology by 5%, Siberian tick-borne typhus by 4.7% and trichinosis by 6 times. Last year, there were 50 new cases of malaria and 79 cases of Dengue fever. And most of these diseases require antibiotic treatment. As, however, we see same situation in other countries. In a recent study published in the Journal of the Society of Pediatric Infectious Diseases, American scientists, having analyzed the medical data of 94,000 children under the age of 18, hospitalized in 48 hospitals in

different states of America with a diagnosis of enterobacterial infection, found a 700-fold (!) increase in these infections due to antibiotic resistance [4]. The researchers described that the proportion of antibiotic-resistant pathogens increased from 0.2% in 2007 to 1.5% in 2015. Moreover, more than 75% of these resistant microbes were already present at the time of hospitalization, that is, the infection was not nosocomial. At the same time, the duration of hospitalization among patients with resistant pathogens was 20% longer. By the way, antibiotics cannot cope with about 1/4 of pneumonia in adults today, as evidenced by an analysis of data from 252,000 patients treated on an outpatient basis in the United States in 2011–2015 from community-acquired pneumonia [5]. Unfortunately, the problems of inappropriate antibiotic therapy are also observed in children receiving therapy for community-acquired pneumonia. And all because pediatricians do not prescribe the antibiotics prescribed in clinical guidelines. So, according to American colleagues, who analyzed the medical history of more than 10,000 children treated in outpatient clinics in Pennsylvania and New Jersey, only slightly more than 1/3 (40.7%) received the recommended amoxicillin. But macrolides were prescribed in 42.5% of cases, and broad-spectrum antibiotics - in another 16.8% [6]. Clinical guidelines still influence the choice of a doctor [7]. So, before the introduction in 2011 into pediatric practice of the joint clinical guidelines of the Society of Infectious Diseases and the Society of Pediatric Infectious Diseases of America in 2009–2011. less than 10% of children hospitalized with a diagnosis of pneumonia received treatment with penicillin antibiotics, and after their introduction (in 2012–2015) - already 27.6%. At the same time, in hospitals where doctors were educated, this was the right choice in 29.5% of cases and where they did not study - in 20.1%.

According to the study, Americans prescribe antibiotics for the treatment of viral infections in 30% of cases; in the post-Soviet countries this level reaches 90% [8]. It is especially sad that children are being treated with antibiotics very early. A study conducted by a team of scientists in 8 countries examined the use of antibiotics in children in the first two years of life. Over 5 years (from 2009 to 2014), the authors followed 2,134 children in Bangladesh, Brazil, India, Nepal, Pakistan, Peru, Tanzania and South Africa. Over the years, children received an average of 4.9 antibiotic courses per child per year, with the highest frequency of prescriptions for patients in South Asian countries. Including antibacterial agents were prescribed for viral infections: in 44.2% of cases of viral gastroenteritis and 39.5% of upper respiratory tract infections, that is, the treatment was not carried out in accordance with patient management protocols [9]. Inappropriate use of antibiotics always leads to increased antibiotic resistance. The fact that antibiotic resistance literally "follows on the heels" of the prescription of antibiotics, and that it can be predicted was well highlighted in their publication by Israeli scientists [10]. After observing two communities of Israelis of Jewish and Arab origin for 5 years, fixing seasonal increases and decreases in antibiotic prescription and antibiotic resistance following them with a three-month lag, the authors created a mathematical model capable of predicting future resistance to different groups of antibacterial agents. An interesting fact from a scientific point of view, but little known to the general medical and non-medical community, is that that resistant bacteria are spreading around the world by travelers. Swedish exchange students who studied in India and Central Africa, did not get sick during the trip and were not treated with antibiotics, returned home with the resistance of the intestinal microbiome to various antibiotics [11]. A metagenomic analysis of the feces of students revealed a 2.6-fold increase in the number of genes for resistance to sulfonamides and beta-lactams and a 7.7-fold increase in the number of resistance genes to trimethoprim after returning compared to the level before the trip. Before studying abroad, only 1 student had genes for beta-lactamases, and then already in 12. This phenomenon is most likely the result of the ingestion of antibiotic-resistant bacteria with food or water into our bodies. Now it becomes clear that there are differences in resistance genes in the intestinal microbiome of people living in different geographic regions of the world, described in an article by Indian colleagues [12]. After analyzing the features of the intestinal microbiome and genes for antibiotic resistance to 240 antibacterial drugs in 275 individuals from America (USA), Europe (Denmark, Spain, Italy, France) and Asia (China and Japan), the scientists described 4 clusters (called by them resistotypes) characteristic of residents of different countries. So, resistotype 1a was mainly characteristic of Europeans and Japanese, 1b - was equally common among residents of America and Europe and more often than in Asia, resistance type 1c was more typical for Americans, and 2 - for Chinese and did not spread among residents of others regions. Each resistance type has its own sensitivity / resistance to each of the analyzed antibacterial drugs, what could be the basis for the adoption of national strategies to contain antibiotic resistance at the country level. In general, the topic of intestinal microbiota and its effect on human health is being discussed very actively today. When Harvard scientists deciphered the genome of the microbes that inhabit the human intestines, they discovered thousands of new bacteria and other representatives of this "fauna", the vast majority of which are still unknown to mankind. It is noteworthy that the microbi-

ome changes not only with age, it depends on how a person was born - during natural childbirth or by caesarean section, how he was fed (with breast milk or formula), and also whether he received antibiotics, especially in the early childhood. But it is precisely the change in the microbiome that is today the basis of not only somatic diseases, but also many mental problems. The tendency to overweight in preschool children (which threatens the subsequent rapid development of obesity) may be a consequence of the intestinal microbiota changed in infancy: this is the conclusion made by Finnish scientists [13]. By observing two cohorts of healthy Finnish and Dutch babies born naturally, and analyzing the relationship between the microbiota at 3 months and body mass index at the age of 5-6 years, scientists have shown that there is a direct relationship between changes in the composition of intestinal bacteria under the influence of antibiotic therapy and weight bodies of preschoolers. Bifidobacteria and streptococci affect, respectively, positively and negatively on the body weight of the child and can be early predictive markers of future problems. Thus, antibiotics prescribed to a child in the very first months of life dramatically change the entire trajectory of its subsequent development, often and quickly lead to the development of overweight, and then obesity, diabetes mellitus, early arterial hypertension and the rest of the bunch of problems of modern people. This means that by preventing the early use of antibiotics in children, you can preserve his health for many years.

Conclusions

Antibiotic resistance is a major threat to global health and sustainable development, the principles of which were defined in the 2030 Agenda and the Sustainable Development Goals. It is estimated that, in the absence of effective interventions, the development of antimicrobial resistance could lead to a global death's will increase by about 10 million cases annually. Growing concerns about antibiotic resistance have led to the adoption of a number of national, regional and global action plans in recent years to raise awareness, promote research and optimize antimicrobial use and access. Global initiatives also highlight the importance of more effective and sustainable investment in technology development and intersectoral action.

References

1. Ecdc.europa.eu [Internet]. European Centre for Disease Prevention and Control (ECDC). Last-line antibiotics are failing – ECDC, 2016 [cited 2017 Oct 27]. Available from: https://ecdc. europa.eu/en/news-events/last-line-antibiotics-are-failing.
2. who.int [internet]. Obsledovanie VOZ v stranah svidetel'stvuet o shiroko rasprostranennom neponimanii obshhestvennost'ju ustojchivosti k antibiotikam. [WHO multi-country survey reveals widespread public misunderstanding about antibiotic resistance]. Available by: http://www.who.int/mediacentre/news/releases/2015/antibiotic-resistance/ru/. The link was active on 03.10.2017. (in Russian)
3. Rossiyan «terroriziruyut» detskie infektsii. Dannye otcheta po epidemiologicheskoi situatsii v strane po itogam pervoi poloviny 2016 goda [Russians are "terrorized" by childhood infections. Data from the report on the epidemiological situation in the country based on the results of the first half of 2016] Available by: http://www. univadis.ru/medical-news/183/Rossiyan-terroriziruyut-detskieinfekcii. The link was active on 03.10.2017. (in Russian)
4. Meropol SB, Haupt AA, Debanne SM. Incidence and outcomes of infections caused by multidrug-resistant enterobacteriaceae in children, 2007-2015. J Pediatric Infect Dis Soc. 2017:093. doi: 10.1093/jpids/piw093.
5. McKinnell J, Classi P, Blumberg P, et al. Clinical predictors of antibiotic failure in adult outpatients with community-acquired pneumonia. Am J Respir Crit Care Med. 2017;195:A2644.
6. Williams DJ, Hall M, Gerber JS, et al. Impact of a National Guideline on antibiotic selection for hospitalized pneumonia. Pediatrics. 2017;139(4):e20163231. doi: 10.1542/peds.20163231.
7. Handy LK, Bryan M, Gerber JS, et al. Variability in antibiotic prescribing for community-acquired pneumonia. Pediatrics. 2017;139(4):e20162331. doi: 10.1542/peds.2016-2331.
8. Ustojchivost' k antibiotikam. Informacionnyj bjulleten' VOZ. – 2017. [Antibiotic resistance. Fact sheet] Available by: http://www.who.int/mediacentre/factsheets/antibiotic-resistance/ru/. The link was active on 03.10.2017. (In Russian)
9. Priem antibiotikov det'mi mladshe dvuh let v vos'mi stranah: prospektivnoe kogortnoe issledovanie. Bjulleten' VOZ. [Use of antibiotics in children younger than two years in eight countries: a prospective cohort study] Available by: http://www.who.int/bulletin/volumes/95/1/16176123-ab/ru/. The link was active on 03.10.2017. (In Russian)
10. Blanquart F, Lehtinen S, Fraser C. An evolutionary model to predict the frequency of antibiotic resistance under seasonal antibiotic use, and an application to Streptococcus pneumoniae. Proc Biol Sci. 2017;284(1855):20170679. doi: 10.1098/ rspb.2017.0679.
11. Bengtsson-Palme J, Angelin M, Huss M, et al. The human gut microbiome as a transporter of antibiotic resistance genes between continents. Antimicrob Agents Chemother. 2015;59(10):6551– 6560. doi: 10.1128/Aac.00933-15.
12. Ghosh TS, Gupta SS, Nair GB, Mande SS. In silico analysis of antibiotic resistance genes in the gut microflora of individuals from diverse geographies and age-groups. PLoS One. 2013;8(12):e83823. doi: 10.1371/journal.pone.0083823.
13. Korpela K, Zijlmans MAC, Kuitunen M, et al. Childhood BMI in relation to microbiota in infancy and lifetime antibiotic use. Microbiome. 2017;5(1):26. doi: 10.1186/s40168-017-0245-y.

МРНТИ 76.29.47

IMMUNOLOGICAL ASPECTS OF THE CYTOMEGALOVIRUS INFECTIONS AFTER PEDIATRIC LIVER TRANSPLANTATION

Yerimova N.Zh.
orcid.org/0000-0002-0565-5327
Shirtaev B.K.
orcid.org/0000-0002-0773-3878
Baimakhanov B.B.
orcid.org/0000-0002-9839-6853
Chormanov A.T.
orcid.org/0000-0003-3513-1935
Sundetov M.M.
orcid.org/0000-0002-0387-5422
Kurbanov D.R.
orcid.org/0000-0002-0426-9387
Khalykov K.U.
orcid.org/0000-0003-1266-697X
Kokimbayev D.A.
orcid.org/0000-0001-7879-3328
Alkhanov B.A.
orcid.org/0000-0001-6543-0712

Yerimova N.Zh., Shirtaev B.K., Baimakhanov B.B., Chormanov A.T., Sundetov M.M., Kurbanov D.R., Khalykov K.U., Kokimbayev D. A., Alkhanov B.A.
«A.N. Syzganov National Scientific Center for Surgery» JSC, Almaty, Kazakhstan

Corresponding author:
Yerimova N.Zh. *– MD, pediatrician, "A.N. Syzganov National Scientific Center for Surgery" JSC.*
E-mail: nazier1611@gmail.com

Conflict of interest
The authors declare that they have no conflicts of interest

Keywords
Cytomegalovirus, immunosuppression, antibodies, valganciclovir, liver transplantation

Abstract

CMV infection is one of the most common infectious complications of viral etiology among both adult patients and children after liver transplantation. Our experience shows that the appointment of preventive therapy led to a decrease in the frequency of indirect effects of CMVI, and also improved the survival rates of patients after transplantation. This article describes in detail the immunological changes in the background of CMV infection and immunosuppression.

Бауыр трансплантациясынан кейінгі балалардағы цитомегаловирустық инфекцияның иммунологиялық аспектілері

Корреспонденция үшін автор:
Еримова Н.Ж. *– педиатр, «А.Н. Сызғанов атындағы Ұлттық ғылыми хирургия орталығы» АҚ.*
E-mail: nazier1611@gmail.com

Еримова Н.Ж., Ширтаев Б.К., Баймаханов Б.Б., Чорманов А.Т., Сундетов М.М., Курбанов Д.Р., Халықов Қ.У., Көкімбаев Д.А., Алханов Б.А.
«А. Н. Сызғанов атындағы Ұлттық ғылыми хирургия орталығы» АҚ, Алматы қ., Қазақстан

Мүдделер қақтығысы
Авторлар мүдделер қақтығысының жоқтығын мәлімдейді.

Түйін сөздер
Цитомегаловирус, иммуносупрессия, антиденелер, валганцикловир, бауыр трансплантациясы

Аңдатпа

ЦМВ инфекция ересек науқастар арасында да, бауыр трансплантациясынан кейінгі балалар арасында да жиі кездесетін жұқпалы асқынулардың бірі болып табылады. Біздің тәжірибеміз профилактикалық терапияны тағайындау ЦМВ инфекцияның жанама әсерлерінің жиілігін төмендетуге, сондай - ақ трансплантациядан кейін пациенттердің өмір сүру деңгейін жақсартуға әкелгенін көрсетеді. Бұл мақалада ЦМВ инфекция мен иммуносупрессия кезіндегі иммунологиялық өзгерістер егжей-тегжейлі қаралған.

Иммунологические аспекты цитомегаловирусной инфекции у детей после трансплантации печени

Автор для корреспонденции:
Еримова Н.Ж. *– врач-педиатр, АО «Национальный научный центр хирургии им. А.Н. Сызганова».*
E-mail: nazier1611@gmail.com

Еримова Н.Ж., Ширтаев Б.К., Баймаханов Б.Б., Чорманов А.Т., Сундетов М.М., Курбанов Д.Р., Халыков К.У., Кокимбаев Д.А., Алханов Б.А.
АО "Национальный научный центр хирургии им. А.Н. Сызганова", г. Алматы, Казахстан

Конфликт интересов
Авторы заявляют об отсутствии конфликта интересов.

Ключевые слова
Цитомегаловирус, иммуносупрессия, антитела, валганцикловир, трансплантация печени

Аннотация

ЦМВ инфекция является одним из самых частых инфекционных осложнений вирусной этиологии как среди взрослых пациентов, так и среди детей после трансплантации печени. Наш опыт показывает - назначение профилактической терапии привело к снижению частоты непрямых эффектов ЦМВИ, а также улучшило показатели выживания пациентов после трансплантации. Данная статья детально отражает иммунологические изменения на фоне ЦМВ инфекции и иммуносупрессии.

Topicality

The cytomegalovirus (CMV) is one of the most frequent virus agents having an influence on the results of hepatic transplantation. The cytomegalovirus (CMV) is widespread both among the patients in the condition of long-term medicamentous prophylactic suppression and among the population in general (60-100%). It is the main risk that can cause the loss of the transplant and the death of the patient after fulfillment of the hepatic transplantation. Decrease in the quantity of similar complications by means of various methods of prevention was demonstrated in the two meta-researches. According to the information received, HCMV develops within the first year after hepatic transplantation fulfillment without use of preventive antiviral preparations approximately in 44–65% of the cases.

Aim

The appraisal of the role of the cytomegalovirus infection in case of pediatric transplant immunology and CMV influence on the results of hepatic transplantation. The main methods of fight against this infectious complication are widely described in the world literature, but these publications are generally related to adult hepatic transplantation. The researches in the field of pediatrics have limited character.

Materials and methods

Thirty (30) surgery operations on pediatric hepatic transplantation have been fulfilled since March, 2016 with use of the materials taken from live kin donors. The age of the patients: 6 months - 8 years old, as follows: 23 (76.6%) patients - Biliary Atresia; 2 (6.9%) patients - Hepatic Cirrhosis in the outcome of autoimmune hepatitis; 1 (3.3%) patient - Primary Hyperoxaluria; 1 (3.3%) patient – Cholangiocarcinoma; 1 (3.3%) patient - Inoperable Hepatoblastoma; 1 (3.3%) Hepatic Cirrhosis in the outcome of Viral Hepatitis «C» against the background of langerhans cell histiocytosis. The number of the female infants - 17 (56.7%) patients and the male infants – 13 (43.3%) patients.

Results

All the patients with the positive quantitatives PCR took Cytomegalovirus immunoglobulin 3-5 before the operations. The left lateral sector was transplanted to the 23 (76.6%) patients with biliary atresia from their CMV seropositive kin intravital donor (D+/R+) and the 4 (23.3%) patients – from their CMV seronegative donors (D-/R+). The total number of the seropositive donors (D+/R+) - 26 ones (86.6%). The total number of the seronegative donors (D-/R+) – 4 ones (13.4%). One Simultaneous Liver-Kidney Transplantation was fulfilled for one infant patient. All the patients with biliary atresia had CMV infection. Eight (8) patients had an active form of the disease. The follow-up period: 14 days – 3 years after transplantation. The ternary phylactic suppression therapy was fulfilled after each operation -Prednisolone, Cell-Cept, Tacrolimus. Activization took place in 3 (12%) patients with a not active form of CMV. The neurologic symptoms were in progress in 2 patients. The active CMV form in 1 patient was connected with the toxic effect of the fulfilled phylactic suppression therapy (Tacrolimus). The preparation had to be discontinued temporarily to stop the intoxication and the conservative methods and preparations were prescribed for the patient. All the patients with CMV infection took antiviral therapy with the preparation Valganciclovir (18 mg/kg) for a month and the viral load was decreased in the patients with the active form of CMV. Six (6) months later the quantitatives PCR for CMV became negative in all the patients. Nine (9) months later the viral load increased in 1 (3.3%) patient with the not active form of CMV. Twelve (12) months later Viremia was diagnosed in 6 (20%) patients and they were prescribed the antiviral therapy during the period of 3-6 months with Valganciclovir. Decreasing the total number of T-lymphocytes and T-helpers was registered against the background of phylactic suppression therapy and viremia (8 patients).

The imbalance was revealed in the content of the main subpopulations of T-lymphocytes (CD3+CD4+/CD3+CD8+ = 1:65) and activation was increased (CD3+CD25+ = ± 8.59%) in 50% of the patients against the background of the decreased total number of T-lymphocytes (CD3+ CD4+ = 30.34% and CD3+ CD8+ = ±18.3%) of the main subpopulations of T-lymphocytes (CD3+CD4+ =±18.3%). The insignificant proliferation of B-lymphocytes (30-44%) was marked as well. The cause of the revealed changes in the cellular level may be the immunodeficiency induced with the presence of a center of not-acute inflammatory process. Three (37.5%) patients had the following level of lymphocytes: CD3+ = ± 60.39%. The expressed imbalance in the main subpopulations of T–lymphocytes was revealed as well: (CD3+CD4+/CD3+CD8+ = ±0.99). It was conditioned with decreasing the content of the helper subpopulation of T–lymphocytes (CD3+CD4+ = ±30.59%). The level of the lymphocytes of the late activation was increased - (CD3+ HLA - DR + = ±9.29%) as well as the level of the T-NK cells - (CD3+CD (16+56) += 7.15%. The content of the B-lymphocytes (CD19+ = 24.73%) and NK-cells (CD3-CD (16+56) += ±13.87%) was within normal range. The expressed immune imbalance was marked because of using

the phylactic suppression therapy and presence of a CMV-disease or CMV Viremia. The higher the concentration of the phylactic suppression therapy was, the higher the CMV-titres in the blood became. The following serological researches were fulfilled for all the patients: Definition of the IgM and IgG antibodies both with the CMV methods and the methods of Enzyme Immunoassay as well as the definition of DNA of CMV in the blood and Liver Biopsy Slide with the method of PCR. The positive result of any abovementioned tests (the antibodies IgM and IgG with low avidity, the DNA of CMV in the blood and in the tissues and also specifical inclusions in the LBSs) was considered as a case of a CMV-infection.

Conclusions

Practical recommendations:

1. The main prophylaxis of the CMV infection has to become the combination of the monitoring of the activity of the infection process with a long-term medicamental prophylaxis and treatment of all the episodes of the active CMVI.

2. Prescribing the pulse-therapy in case of rejection of the hepatic transplant it is necessary to take into account the character of the running of CMVI and apply the antiviral prophylaxis with Valganciclovir or Ganciclovir as needed as well as to fulfill all the necessary researches of the CMV activity in the plasma of the blood with PCR method.

3. It is recommended to prescribe a double medical dosage of Ganciclovir, Valganciclovir and human normal immunoglobulin, immunoglobulin against CMV and also decrease of the level of medicamentous phylactic suppression or its temporary cancellation in case of resistance of CMVI to basic therapy.

4. The liver recipients may be used the above mentioned immunoglobulins to correct the immune imbalance taking into account the immunodeficient condition caused with the phylactic suppression therapy.

OPTIMIZATION OF DIET THERAPY OF CANCER-PROTECTIVE CONTENT IN THE CLINICAL MANAGEMENT OF PATIENTS WITH BREAST CANCER. (REVIEW)

МРНТИ 76.29.49

Mussina A.T.[1], Kapanova G.Zh.[2]
[1]Almaty Oncology Center, Almaty, Kazakhstan
[2]Faculty of Medicine and Health of the Kazakh National University named after Al-Farabi, Almaty, Kazakhstan

Mussina A.T.
orcid.org/0000-0001-7965-9649

Kapanova G.Zh.
orcid.org/0000-0002-6521-6836

Corresponding author:
Mussina A.T. *- chemotherapist, Almaty Oncology Center.*
E-mail: mussina_a_t@bk.ru

Conflict of interest
The authors declare that they have no conflicts of interest

Abstract

Breast cancer (BC) is the most common cancer in the world and the most common malignancy in women. There is growing evidence that lifestyle factors, including diet, body weight, and physical activity, may be associated with a higher risk of breast cancer. Patients with breast cancer undergoing chemotherapy and / or radiotherapy experience various symptoms that impair the patient's quality of life. Research on dietary interventions during the treatment of breast cancer has shown that certain diets and the addition of certain nutritional components can be useful for reducing side effects caused by medication, increasing therapeutic effectiveness, and preventing the development of primary tumors. Thus, nutritional intervention in patients with breast cancer can be considered an integral part of a multi-modal therapeutic approach. However, further research using dietary interventions in large clinical trials is needed to definitively establish effective interventions in these patients, improve long-term survival and quality of life.

The article purpose is to generalize the role of dietary natural products and their biologically active compounds in the prevention and treatment of breast cancer, the clinical study of synthetic and natural anti-carcinogenic substances, the selection of effective and safe food products, as well as the choice of diet and lifestyle, as it is determined as a priority in breast cancer research.

Keywords
breast cancer, diet, food, nutrients, prevention, anti-carcinogens, biologically active natural compounds

Сүт безі қатерлі ісігі бар науқастарды клиникалық жүргізудегі қатерлі ісіктен қорғайтын диетотерапияны оңтайландыру (Әдебиет шолуы)

Мусина А.Т.[1], Қапанова Г.Ж.[2]
[1]Алматы қалалық онкологиялық орталығы, Алматы қ., Қазақстан
[2]Әл-Фараби атындағы Қазақ ұлттық университетінің медицина және денсаулық сақтау факультеті, Алматы қ., Қазақстан

Корреспонденция үшін автор:
Мусина А.Т. *– дәрігер-химиотерапевт, Алматы қалалық онкологиялық орталығы.*
E-mail: mussina_a_t@bk.ru

Мүдделер қақтығысы
Авторлар мүдделер қақтығысының жоқтығын мәлімдейді

Аңдатпа

Сүт безі қатерлі ісігі - әлемдегі ең көп таралған қатерлі ісік және көбінде әйелдерде кездесетін қатерлі ісік. Өмір салты факторлары, оның ішінде диета, салмақ және физикалық белсенділік сүт безі қатерлі ісігінің жоғары қаупімен байланысты болуы мүмкін деген дәлелдер артып келеді. Химиотерапия және / немесе сәулелік терапиядан өтіп жатқан сүт безі қатерлі ісігі бар пациенттер өмір сапасын нашарлататын әртүрлі белгілерді сезінеді.

Сүт безі қатерлі ісігін емдеу барысындағы диеталық араласуды зерттеуге арналған бақылаулар бойынша, арнайы диеталар мен кейбір тағам компоненттерін қосу емдік препараттарды қолданудан болған теріс әсерлерді азайту ушін пайдалы болуы мумкін екенін көрсетті. Дегенмен, осы клиникалық зерттеулерде диеталық араласуды қолдана отырып, осы пациенттерге тиімді араласуды нақты құру және ұзақ мерзімді өмір сүру мен өмір сапасын жақсарту үшін қосымша зерттеулер қажет.

Осылайша, сүт безі қатерлі ісігі бар науқастарға тағамдық қосу мультимодальды терапевтік тәсілдің ажырамас бөлігі ретінде қарастыруға болады.

Бұл мақаланың мақсаты сүт безі қатерлі ісігін емдеу мен алдын алу шараларында диеталық табиғи өнімдер мен олардың биологиялық белсенді қосындыларының маңызын жалпылау, табиғи және синтетикалық антиканцерогенді заттарды клиникалық зерттеу , тиімді және қауыпсіз тағам өнімдерін таңдау , және де өмір суру салты мен диета түрін таңдау, себебі бұл сүт безі қатерлі ісігін зерттеугдегі тиімді басты бағыт ретінде есептеледі.

Түйін сөздер
сүт безі қатерлі ісігі, диета, азық-түлік, қоректік заттар, алдын алу, антиканцирогендер, биологиялық белсенді табиғи қосылыстар

Оптимизация диетотерапии онкопротективного содержания в клиническом ведении пациентов с раком молочной железы. (Обзор литературы)

Мусина А.Т.[1], Капанова Г.Ж.[2]
[1]Городской Алматинский Онкологический Центр, г. Алматы, Казахстан
[2]Факультет медицины и здравоохранения Казахского национального университета имени Аль-Фараби, г. Алматы, Казахстан

Автор для корреспонденции:
Мусина А.Т. *– врач-химиотерапевт, Городской Алматинский Онкологический Центр.*
E-mail: mussina_a_t@bk.ru

Конфликт интересов
Авторы заявляют об отсутствии конфликта интересов

Аннотация

Рак молочной железы (РМЖ) является наиболее распространенным раком в мире и наиболее часто встречающимся злокачественным новообразованием у женщин. Появляется все больше доказательств того, что факторы образа жизни, включая диету, массу тела и физическую активность, могут быть связаны с более высоким риском РМЖ. Пациенты с РМЖ, проходящие химиотерапию и / или радиотерапию, испытывают различные симптомы, которые ухудшают качество жизни пациента. Исследования, посвященные изучению диетических вмешательств во время лечения РМЖ, показали, что определенные диеты и добавление некоторых пищевых компонентов, могут быть полезны для снижения побочных эффектов, вызванных приемом лекарств, для повышения терапевтической эффективности а так же профилактики развития первичной опухоли. Таким образом, нутритивное вмешательство у пациентов с РМЖ может рассматриваться как неотъемлемая часть мультимодального терапевтического подхода. Тем не менее, необходимы дальнейшие исследования с использованием диетических вмешательств в крупных клинических испытаниях, чтобы окончательно установить эффективные вмешательства у этих пациентов, улучшить долгосрочную выживаемость и качество жизни.

Целью данной статьи является обобщение роли диетических натуральных продуктов и их биологически активных соединений в профилактике и лечении рака молочной железы, клиническое изучение синтетических и природных антиканцерогенных веществ, отбор эффективных и безопасных пищевых продуктов, а так же выбор диеты и образа жизни, так как это определяется в качестве приоритетного направления в исследований рака молочной железы.

Ключевые слова
рак молочной железы, диета, продукты питания, питательные вещества, профилактика, антиканцерогены, биологически активные природные соединения.

The World Health Organization (WHO) has predicted that 24 million people will be affected by cancer deaths by 2035. Breast cancer is one of the most common cancers and the leading cause of cancer death among women. The incidence of breast cancer annually increases worldwide by 1.8-2.0%. Between 2005 and 2020, there was an almost 26% increase in breast cancer incidence, and this increase is expected to be higher from year to year [21]. Of all types of cancer diagnosed in women under the 40 age, 40% are in breast cancer. Of these, approximately 6.6% of cases are diagnosed in women aged 40 and younger. The average risk of developing breast cancer is one in 173 [1,8,22].

The American Cancer Society has identified exogenous factors that include reproductive, environmental, and life factors such as age, family history, infertility and absence of children, history of chest irradiation, early menarche, oral contraceptive use, lactation (never breastfeeding or short duration of breastfeeding) , use of hormone replacement therapy, alcohol consumption, diabetes, obesity, disturbed circadian rhythm.

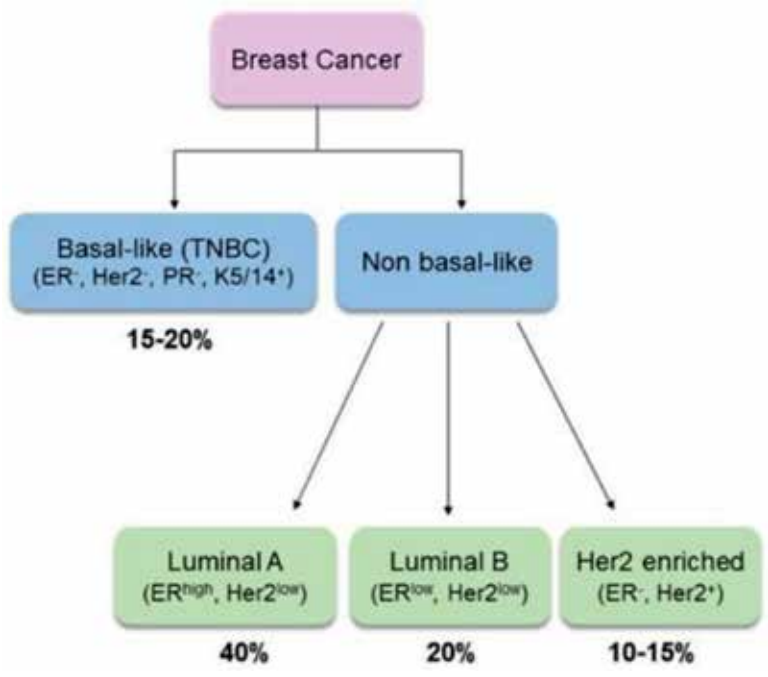
Genetic risk factors, such as mutations in the breast cancer susceptibility genes 1 (BRCA1) and BRCA2, account for only about 5-10% of all breast cancer cases [2,5,21].

Breast cancer is classified by histology, TNM, and phenotype. The latter is described as one of the following types: Hormone-positive (estrogen and / or progesterone receptor) or hormone-negative (estrogen and / or progesterone negative); HER2 / neu positive or HER2 / neu negative; Triple negative (negative estrogen receptor, progesterone receptor and HER2 / neu). [1.6].

These different subtypes of breast cancer respond differently to treatment, making breast cancer extremely difficult to treat. Currently, the main treatment options for breast cancer are surgical resection, adjuvant chemotherapy, radiation therapy, and hormone therapy. However, the development of drug resistance and major side effects has weakened the effectiveness of these treatments. Also TNBC is now the most unfavorable prognostic form of the disease [24].

Therefore, the prevention of breast cancer is of the utmost importance. This situation urgently requires research to find more effective strategies for the prevention and treatment of breast cancer with fewer side effects [1,5]. Systemic chemotherapy, hormone therapy is the standard treatment for breast cancer. Therapy usually lasts 3-6 months and is often accompanied by drug-resistant side effects, which are common causes of chemotherapy failure and relapse, including nausea, vomiting, loss of appetite, dry mouth, changes in taste or smell, weight gain [3,4,5].

Indeed, therapy-induced nausea has a significant impact on the pleasure of eating, leading to inadequate intake of energy and essential nutrients, as well as malnutrition, decreased adherence to



Picture 1.
Breast cancer subtypes and relative prevalence. TNBC: triple negative breast cancer [2]

treatment, decreased immunity, emotional distress and negative quality of life [6].

During chemotherapy, women report changes in food preferences. Cognitive side effects and mental activity are also common in women undergoing chemotherapy [3, 9].

There are also violations of attention, speed of information processing, executive functions and working memory with varying degrees of severity depending on the drugs used, the intensity and duration of treatment, as well as predisposing factors [2, 27].

Also, persistent fatigue is one of the most common and burdensome late effects of breast cancer treatment [18]. Even ten years after completing breast cancer treatment, one third of surviving patients have moderate to severe persistent fatigue. Persistent fatigue is also often associated with depression, poor sleep and a reduced quality of life [9]. Women with a history of breast cancer often use certain diets and supplements (such as multivitamins and antioxidants) to treat the typical symptoms and side effects of conventional cancer therapies. However, these products may not always have positive effects and therefore more clinical studies are needed regarding safety and efficacy, as well as timing and dosage. Studies examining nutritional interventions during breast cancer treatment have shown that nutritional counseling and the addition of some tested and proven dietary components may be beneficial in reducing drug-induced side effects as well as increasing therapeutic efficacy [2, 12].

The fact that morbidity is growing in parallel with economic development suggests that environmental factors may play a role in the causation of breast cancer [6]

Among these risk factors, diet is attracting significant attention, since it is a modifiable risk factor and, thus, opens up opportunities for the development of preventive strategies [3]. Based on the most recent data, the World Cancer Research Foundation / American Institute for Cancer Research (WCRF / AICR) has compiled guidelines for lifestyle. According to these guidelines, (1) maintaining a healthy body weight, (2) being physically active, (3) following a diet rich in fiber and soy, and (4) limiting fat intake (particularly saturated fatty acids) may improve overall survival after breast cancer diagnosis. Much evidence also supports the clinical relevance of nutritional intervention in cancer patients to ensure adequate energy and nutrient intake during chemotherapy, as well as the potential for improved response to pharmacological cancer therapy and reduced toxicity. In addition, lifestyle changes, including diet and exercise, can reduce long-term side effects of treatment and promote long-term overall health by reducing comorbid conditions (eg, obesity, hypertension, hyperlipidemia, and diabetes mellitus) . Indeed, there is a potential new role for nutrition as an arsenal of modern cancer therapy [6,17]. At present, cancer chemoprophylaxis is recognized as one of the topical areas of anticancer control, and a large number of studies in developed countries are devoted to this area [22]. Given all these data, there is a need to understand that cancer prevention drugs must meet the following basic requirements: 1) proven effectiveness - the ability to prevent the occurrence of malignant tumors; 2) the possibility of using for a

long time; 3) lack of toxic properties or minimal toxicity; 4) the desired additional beneficial properties; 5) dosage forms - only oral or for topical use [25].

Thus, nutritional intervention in patients with breast cancer can be considered as an integral part of a multimodal therapeutic approach. Some evidence suggests that dietary intervention is a key factor in determining cancer prognosis, patient quality of life, and, in particular, the effectiveness of cancer therapy. Since BC is clinically a heterogeneous disease, there is growing evidence that lifestyle factors primarily include diet [2].

The role of diet in tumorigenesis was a popular area of research during the 1940s and early 1950s. Currently, there is a revival of interest due to the increasing role of environmental influences on the development of cancer and mortality in human populations in general [17]. For decades, researchers have viewed diet as the most important environmental factor. Some scientists report that the influence of diet is more important in the development of breast cancer than the influence of genetics [3].

In addition, experimental studies have also shown that many dietary natural foods can be a potential source of prevention and treatment for breast cancer [18]. Comprehensive reviews of numerous studies have shown the specific protective role of various foods and their constituents and considered them as an effective cancer prevention strategy. [5,11,13]. Also, numerous environmental analytical epidemiological studies and laboratory studies have shown that dietary factors can influence the risk of developing breast cancer, as a useful factor for cancer prevention, in addition, to reduce the risk of cancer progression and thereby improve treatment outcomes and reduce human suffering, improve outcome in surviving breast cancer patients, contributing to weight loss and obesity reduction [8,10, 20]. In addition, certain dietary components can also enhance therapeutic efficacy, thereby improving the quality of life of cancer survivors [2,4].

Since people consume not only single foods, but also their combinations, the assessment of dietary patterns can provide valuable information in determining the relationship between diet and cancer risk [3]. And a deeper understanding of the relationship between healthy eating and reduced cancer rates has prompted many researchers to focus on natural foods for cancer prevention. A variety of different terms are used to describe the many natural products currently being developed with the aim of obtaining health benefits. These include nutraceuticals, functional foods, pharmaceuticals, designer foods, nutritional supplements, and phytochemicals. Nutraceuticals and functional foods include many biologically active phytochemicals that act as a defense system against a number of diseases, have beneficial effects with good safety profiles for many types of cancer [12, 15]. A variety of dietary natural foods have shown potential roles in cancer prevention and treatment. A recently published meta-analysis that included 93 studies found that breast cancer outcomes were one of the few that achieved strong evidence of a protective effect of healthy eating habits, and this effect was particularly noticeable in postmenopausal women who were negative for the hormone receptor. In addition, various epidemiological studies have shown that consumption of soy products, fruits and vegetables (especially cruciferous vegetables) is associated with a reduced risk of breast cancer, and high consumption of certain dietary natural foods can reduce relapse and increase breast cancer survival [16, 21, 23].

Experimental studies have also shown that many dietary natural products and their biologically active components have an inhibitory effect on breast cancer, reducing expression and activity, inhibiting proliferation, metastasis and angiogenesis of breast tumor cells, inducing apoptosis and stopping the cell cycle, as well as sensitizing breast cancer cells to radiation therapy and chemotherapy [5,16].

The following natural products and related bioactives should be noted, including soy (genistein and daidzein), pomegranate (ellagitannins), mangosteen (mangosteen), citrus fruits (naringin), apple (2α-hydroxyursol), grapes, mangoes, cruciferous vegetables (isothiocyanates), ginger (gingerols and segaols), garlic (organosulfur compounds), black cumin (thymoquinone), edible macro-mushrooms (polysaccharides), as well as other useful substances and more flakes [5,11,26]. Therefore, the use of natural dietary substances can become a practical approach to the prevention and treatment of breast cancer [16]. In particular, women with the highest dietary adherence category (i.e. 6-9 points) had an approximately 20% lower risk of developing cancer, compared with women with the lowest category (i.e. 0-3 points). [11,13]. Nutritional enhancement interventions have led to significant dietary changes towards improvement, increased amounts of plant foods and decreased amounts of dietary fats. This, in turn, leads to changes in body composition, heart rate, BMI [7]. In addition, current evidence suggests that greater adherence of surviving breast cancer patients to the Mediterranean diet can reduce breast cancer recurrence, overall cancer mortality and other comorbidities, including cardiovascular disease, which has a beneficial effect on health and life expectancy [2]. The scientific literature has also reported a positive associa-

tion between postmenopausal breast cancer and obesity. The results of this study indicate changes in weight and body composition that occur in response to a diet high in vegetables and low in fat in breast cancer [7]. Numerous dietary components and vitamins have been found to inhibit molecular and signaling pathways associated with different stages of breast cancer development, and therefore may represent potential strategies in the field of breast cancer chemoprevention [19]. Some dietary products and their biologically active components have shown a synergistic effect with chemotherapy or radiation therapy, enhancing their therapeutic effect or reducing side effects [5]. It has been hypothesized that diets high in antioxidants and other specific micronutrients may help counteract the heightened inflammatory condition and thus relieve fatigue.

In several observational studies in breast cancer survivors, diets high in fiber, low in total fat, high in fruits and vegetables, and high in omega-3 fatty acids have been associated with a lower likelihood of persistent fatigue, depression in surviving patients breast cancer [9,18]. Similarly, significant experimental studies have also shown that many dietary natural foods can influence the development of breast cancer by providing a protective effect in general. Their anti-cancer effects include various mechanisms of action, such as decreased expression and activity of ER-α, inhibition of proliferation, migration, metastasis and angiogenesis of breast tumor cells, inducing apoptosis and cell cycle arrest, and sensitizing breast tumor cells to radiation therapy. and chemotherapy [5,7]. In addition, diets high in antioxidant micronutrients found in whole foods, including fish, fruits, and vegetables, have significantly lower concentrations of circulating inflammatory biomarkers [9, 18].

It is well known that many bioactive natural products have a beneficial effect on estrogen-induced breast cancer. These natural products have shown promise for preventive and therapeutic purposes [12,15]. However, some data indicate that, for the prevention of breast cancer, the consumption of active foods (eg, cereals, soy, ginger) should be at an early age, that is, during childhood and / or adolescence [14,16].

In addition, it was found that some food additives exhibit positive activity at the concentration of a certain chemotherapy drug (for example, quercetin enhances the effects of doxorubicin and reduces its cytotoxic side effects) [19].

At the same time, over the past decades, diets in many countries have changed towards a sharp increase in the consumption of ultra-processed foods. After going through numerous physical, biological and / or chemical processes, these foods are considered microbiologically safe, convenient, delicious and affordable. Several surveys (in Europe, USA, Canada, New Zealand and Brazil) assessing individual food consumption, household food expenditure, and supermarket sales have shown that ultra-processed foods account for 25% to 50% of total daily consumption. energy.This dietary trend can be worrisome and worth investigating. Several characteristics of ultra-processed foods may be implicated in causing disease, in particular cancer [23,27]. First, ultra-processed foods are often higher in total fat, saturated fat, and added sugar and salt, as well as lower fiber and vitamin dens.

In addition to the nutrient components, unformed contaminants are present as a result of the reaction in cooked foods, some of which are carcinogenic (for example, acrylamide, heterocyclic amines and polycyclic aromatic hydrocarbons). Second, the packaging of ultra-processed foods

Fig. 2
Dietary natural foods that have been shown to inhibit breast cancer [5]

Table 1.
Summary of evidence on key nutritional interventions to improve breast cancer treatment

	Research	Outcome
Fruits and vegetables	Meta-analysis (15 prospective studies) · Prospective study (75 929 women, 24 years of follow-up) · Prospective study (31,000 women, 11 years of follow-up)	Great antioxidant activity; anti-inflammatory properties; induction of cell cycle arrest in the G2 / M and G0 / G1 phases, increased cell adhesion, cell migration suppress the invasion and motility of breast cancer, suppressing the expression of RhoC and RhoA proteins; arrest of cell apoptosis and the G1 cycle in TNBC cell lines.
Red meat	Meta-analysis (13 cohorts, 3 case-control, 2 clinical trials) · Cohort study (262 195 women, 7 years of follow-up) meta-analysis	Downregulation of oncogenes and upregulation of suppressor genes
Products from soybeans, Isoflavones	Meta-analysis (14 control cases + 7 cohort studies) · Meta-analysis (1 cohort + 7 case-control study) · Meta-analysis (18 prospective studies)	Inhibition of proliferation, migration, metastasis and angiogenesis of tumor cells; sensitization of tumor cells to radiation and chemotherapy; increasing the effectiveness of tamoxifen;
Milk products	Pooled Analysis (8 prospective cohort studies: 351,041 women, 15 years of follow-up) · Meta-analysis (18 prospective cohort studies · Meta-analysis (22 cohorts + 5 case control studies)	Anti-inflammatory, antioxidant and anti-cancer properties; antiproliferative effect, inhibiting cell growth; a proapoptotic effect that stimulates the natural death of breast cancer cells.
Fats	Randomized controlled trial (48,835 postmenopausal women 8.1 years of follow-up) · Meta-analysis (cohort + case control studies) · Systematic review (18 studies) · Epic Exploration (337,327 women, 11.5 years of follow-up) · Meta-analysis (6 cohorts study + 3 case control studies)	Inhibition of molecular and signaling pathways; enhancement of the chemotherapeutic effect of doxorubicin on breast cancer cells and reduction of its cytotoxic side effects.

may contain certain food contact materials that have been postulated to be carcinogenic and destructive, such as bisphenol A. Finally, ultra-processed foods contain permitted but controversial food additives such as sodium nitrite or titanium dioxide, where carcinogenicity is very high [23].

Thus, the prevention, treatment, and support of the general condition of patients with breast cancer with the help of dietary means relies on an individually selected approach rich in staple foods and traditional methods of food production and preparation. [6]. There are a number of recent studies that provide data on what changes in dietary habits and diet have occurred since the diagnosis.

The results of the study showed that 60% of women increased their portions of fruits and vegetables and 80% reported a decrease in fat intake since diagnosis [8].

Based on these findings, it is necessary to propose a “healthy” dietary model, and patients with breast cancer should be motivated to improve their lifestyle and dietary habits before, during and after treatment in order to have better long-term survival and quality of life. [2].

Evidence suggests that efforts are needed to stimulate increased consumption of healthy foods. Armed with this knowledge, women will be highly motivated to learn about cancer prevention and lifestyle changes [8,9,18].

This confirms that the study of the relationship between diet and breast cancer is of great interest, given that cancer prevention through diet and life-

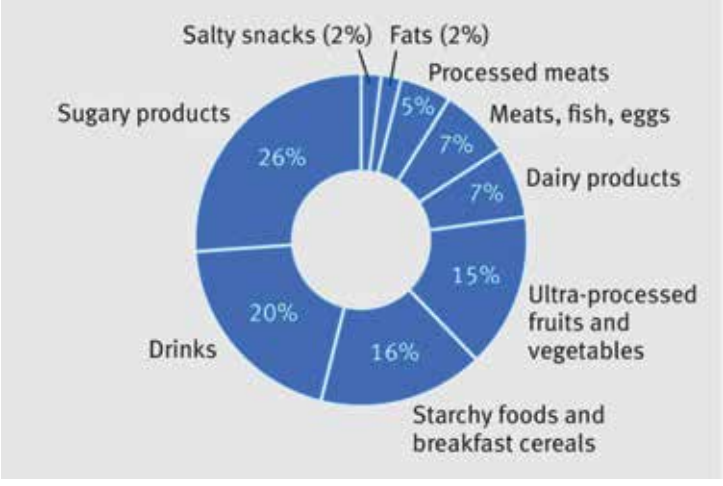


Fig. 3
The relative contribution of each food group to the consumption of ultrafood in the diet [23]

style choices has been identified as a priority area of cancer research. [13].

In addition, the clinical efficacy of dietary natural products and their biologically active components in patients with breast cancer requires further study [9, 18]. It should be noted here that the rapidly growing consumption of ultra-processed foods may lead to an increased burden of cancer and other noncommunicable diseases. Thus, policies aimed at restructuring foods, taxing and marketing restrictions on ultra-processed foods, and promoting fresh or minimally processed foods can contribute to primary cancer prevention. Therefore, it is imperative to raise awareness and disseminate information about healthy eating and how to change unhealthy diets [2,13,24].

Key actions to strengthen cultural support for healthy food consumption that would lower the risk of breast cancer include taking responsibility by political leaders from the capital to the most remote villages and funding initiatives to promote healthy eating.

Additional local measures including national and subnational campaigns such as community-based organic food initiatives; educational sessions; development of brochures, posters and banners and their distribution in towns and villages; as well as an expression of gratitude to medical professionals who are actively working in this direction [3, 21].

It can be assumed that the potential impact on reducing relapse and improving survival in breast cancer may be significant. Additional research in this area will provide directions for lifestyle and clinical interventions that support beneficial behavior change to improve outcomes in women diagnosed with breast cancer. Future research should aim to maximize the integration of factors so that the relative effects of different lifestyle factors can be assessed independently or in combination [10,22].

It should also be recognized that reducing the risk of breast cancer requires a holistic approach, but in order to obtain high-quality scientific evidence, we must consider the various components individually [2, 20]. Dietetic cancer is an emerging field that has the potential to uncover the effects of nutrition on gene expression, and it integrates the science of dietetics, nutritional science, bioinformatics, epigenetics, genomics, epidemiology, and molecular medicine [5,20].

References

1. Clinical protocol for the diagnosis and treatment of breast cancer No. 17, Republic of Kazakhstan dated November 27, 2015.
2. Nutrition and Breast Cancer: A Literature Review on Prevention, Treatment and Recurrence. De Cicco P, Catani MV, Gasperi V, Sibilano M, Quaglietta M, Savini I. Nutrients. 2019 Jul 3; PMID:31277273
3. Is vegetarian diet associated witha lower risk of breast cancer in Taiwanese women?Chang YJ, Hou YC, Chen LJ, 2017 Oct 10; doi: 10.1186/s12889-017-4819-1.
4. Impact of Soy Foods on the Development of Breast Cancer and the Prognosis of Breast Cancer Patients. Messina M. 2016;doi: 10.1159/000444735.
5. Dietary Natural Products for Prevention and Treatment of Breast Cancer.Li Y, Li S, Meng X, Gan RY, Zhang JJ, Li HB. 2017 Jul 8;PMID:28698459
6. Nutrition and primary prevention of breast cancer: foods, nutrients and breast cancer risk . Volker Hanf, May 2005; doi:10.1016
7. Longitudinal changes in body weight and body composition among women previously treated for breast cancer consuming a high vegetable, fruit and fiber, low-fat diet. Thomson CA1, Rock CL, 2005 Feb ; PMID: 15309460
8. Changes in dietary intake after diagnosis of breast cancer. Wayne SJ1, Lopez ST, Butler LM, 2004 Oct; PMID: 15389414

9. Fatigue reduction diet in breast cancer survivors: a pilot randomized clinical trial. Zick SM, Colacino J, Cornellier M, Khabir T, Surnow K, Djuric Z. 2017 Jan; PMID: 27913933
10. Telephone counseling intervention increases intakes of micronutrient and phytochemical-rich vegetables, fruit and fiber in breast cancer survivors. Pierce JP1, Newman VA, Flatt SW, Faerber S, Rock CL, 2004 Feb; PMID: 14747688
11. Conference on"Multidisciplinary approaches to nutritional problems". Symposium on "Nutrition and health". Cruciferous vegetable intake and the risk of human cancer: epidemiological evidence. Kim MK1, Park JH. 2009 Feb; PMID: 19061536
12. Role of dietary bioactive natural products in estrogen receptor-positive breast cancer. Bak MJ, Das Gupta S, Wahler J1, Suh N. 2016 Oct; PMID: 27016037
13. Mediterranean Diet and Breast Cancer Risk.Turati F, Carioli G, Bravi F, Ferraroni M, Serraino D, Montella M, Giacosa A, Toffolutti F, Negri E, Levi F, La Vecchia C. 2018 Mar 8;PMID:29518016
14. Dietary polyunsaturated fatty acids and cancers of the breast and colorectum: emerging evidence for their role as risk modifiers. Bartsch H, Nair J, Owen RW. 1999;
15. Dietary fat intake in relation to lethal breast cancer in two large prospective cohort studies. Boeke CE1, Eliassen AH, Chen WY, Cho E, 2014 Jul; PMID: 24894342
16. Association of low-fat dietary pattern with breast cancer overall survival. Mormile R. 2019 Dec; PMID: 32043844
17. Experimental evidence of dietary factors and hormone-dependent cancers. Carroll KK. 1975;(11 Pt 2):3374–3383.
18. Nutrition and Breast Cancer: A Literature Review on Prevention, Treatment and Recurrence.De Cicco P, Catani MV, Gasperi V, Sibilano M, Quaglietta M, Savini I.2019 Jul 3; 31277273
19. Chemoprevention of Breast Cancer With Vitamins and Micronutrients: A Concise Review. Mokbel K, Mokbel K.2019 Jul-Aug; PMID: 31280187
20. The Mediterranean Diet and Breast Cancer: A Personalised Approach.Shaikh AA, Braakhuis AJ, Bishop KS.2019 Sep 9;PMID: 31505792
21. Dietary patterns, nutrition, and risk of breast cancer: a case-control study in the west of Iran.Marzbani B, Nazari J, Najafi F, Marzbani B, Shahabadi S, Amini M, Moradinazar M, Pasdar Y, Shakiba E, Amini S.2019;PMID: 30754960
22. Breast cancer survival among young women: a review of the role of modifiable lifestyle factors.Brenner DR, Brockton N, Kotsopoulos J, Cotterchio M, 2016; PMID: 26970739
23. Consumption of ultra-processed foods and cancer risk: results from NutriNet-Santй prospective cohort. Fiolet T, Srour B, Sellem L, Kesse-Guyot E.2018; PMID: 29444771
24. Mufazalov F.F., Sharipova N.S. Triple Negative Breast Cancer: Current State of the Art and Not a Common Case of Treatment. Malignant tumors. 2014; (1): 19-31.
25. Synthetic and natural anticarcinogenic substances in the prevention of cancer, Bespalov V.G. 2004.
26. Consumption of red and processed meat and breast cancer incidence: A systematic review and meta-analysis of prospective studies. Farvid M, Stern M, Norat T, Sasazuki S. 2018; PMID: 30183083
27. Red and processed meat consumption and breast cancer: UK Biobank cohort study and meta-analysis.Anderson JJ1, Darwis N, Mackay D. 2018; PMID: 29274927

МАСТЕР-КЛАСС НА ТЕМУ: «ЭКСТРАКЦИЯ ЭНДОКАРДИАЛЬНЫХ ЭЛЕКТРОДОВ МЕХАНИЧЕСКИМИ ИНСТРУМЕНТАМИ»

В ННЦХ им. А.Н. Сызганова 1-2 апреля 2021 года проведен мастер-класс на тему: «Экстракция эндокардиальных электродов механическими инструментами». Операции прошли с участием приглашенного проктора из г. Нижний Новгород, РФ, Сергея Артемьевича Айвазьян, который является ведущим специалистом по экстракции электродов и выполняющим более 400 таких операций в год.

В рамках мастер-класса трем пациентам были проведены операции по удалению электродов, которые имели абсолютные показания к немедленной экстракции. Все операции прошли успешно, без осложнений. Были удалены все запланированные электроды, использованы ротационные устройства для механической экстракции электродов компании Spectranetics.

В последние несколько декад в Казахстане с каждым годом увеличивается количество имплантируемых сердечных устройств. Естественно с увеличением количества имплантаций, растет и потребность удаления устройств и электродов. Ранее для удаления эндокардиальных электродов использовали метод простой тракции. Однако, метод тракции не приемлем в случае длительно существующих электродов (они врастают в стенки сосудов и сердца) и может вызвать серьезные осложнения, такие как перфорация сердца и сосудов, вплоть до летального исхода.

В последние годы появились новые технологии с ротационными и тракционными механизмами, что позволило минимизировать операционные риски и осложнения.

К слову сказать, в отделении аритмологии, интервенционной кардиологии и рентгенохирургии ННЦХ им. А.Н. Сызганова проводятся большинство видов аритмологических операций (более 1000 операций в год). На сегодняшний день отделение является одним из ведущих центров аритмологии в Казахстане.

УЧАСТИЕ В РАБОТЕ IX СЪЕЗДА ДЕТСКИХ ВРАЧЕЙ КАЗАХСТАНА «ДОСТИЖЕНИЯ И ПЕРСПЕКТИВЫ РАЗВИТИЯ ПЕДИАТРИИ И ДЕТСКОЙ ХИРУРГИИ»

С 21 по 23 апреля 2021 года прошел IX Съезд детских врачей Казахстана «Достижения и перспективы развития педиатрии и детской хирургии». В нем приняли участие ведущие ученые и эксперты дальнего и ближнего зарубежья, а также отечественные ученые в области педиатрии и детской хирургии. В связи с недопущением распространения коронавирусной инфекции (COVID-19) мероприятие проводится в режиме онлайн.

На Съезде с докладом на тему: «Диагностика и лечение билиарной атрезии у детей» выступил Председатель правления АО «ННЦХ им. А.Н. Сызганова», д.м.н., профессор, академик НАН РК Баймаханов Б.Б.

Заведующим отделением торакальной и детской хирургии Ширтаевым Б.К. был представлен доклад на тему: «Хирургия пищевода у детей».

В трехдневной работе Съезда также приняли участие специалисты из США, Чехии, Великобритании, России, Украины, Беларуси, Азербайджана, Узбекистана, Кыргызстана и других стран дальнего и ближнего зарубежья.

На площадке Съезда обсуждались самые актуальные вопросы диагностики и лечения заболеваний детского возраста. Темы докладов охватывали от организационных аспектов оказания медицинской помощи детям с различными заболеваниями, вопросов совершенствования медицинских услуг детям на уровне первичной медико-социальной помощи до современных методов диагностики и лечения заболеваний у детей. Затронуты актуальные вопросы детской хирургии, новых стандартов диагностики и лечения редких заболеваний у детей, реабилитации и медико-социальной адаптации детей с различной соматической и хирургической патологией, интенсивной терапии и анестезиологии детского возраста, развития информационных технологий в педиатрии.

Памяти патриарха практической хирургии Степанова Станислава Алексеевича

Степанов Станислав Алексеевич родился 15 августа 1929 году в России, г. Курск. Родители, отец-инженер лесного хозяйства, мать-фельдшер, по окончанию учебных заведений были распределены в Казахстан и С.А.Степанов закончил среднюю школу №15 г. Алма-Аты, в 1947 году поступил в Казахский государственный медицинский институт им. В.М. Молотова, на лечебный факультет.

Незаметно пролетели годы учебы, посвященные теории и практике медицины, участию в художественной самодеятельности, и С.А. Степанов, пройдя школу у военных медиков, едет в 1953 году с супругой в г. Акчатау, поселок закрытого типа Шетского района, Карагандинской области. Поселок Акчатау, будучи одним из центров горнорудной промышленности по извлечению вольфрама и молибдена, распологал развитой инфраструктурой, где была вакансия и, для выпускницы химического факультета КазГУ им. Аль-Фараби, место для хирурга-ординатора в экстренной хирургии медсанчасти для С.А. Степанова. Организаторский талант, клиническое мышление врача позволило молодому хирургу С.А. Степанову стать зав. отделения экстренной хирургии, а затем и заместителем главного врача медсанчасти г. Акчатау по поликлинической работе. Заняв должность главного хирурга Шетского района Станислав Алексеевич усилил работу по диспансеризации хирургических больных, что сказалось на снижении летальности в группе больных с «острым животом». Нехватка медицинских сестер в районе позволила С.А. Степанову добиться открытия двухгодичных курсов института медсестер, что решило проблему кадров за счет местной молодежи. Преподавание предмета «Хирургические болезни» легло на плечи заместителя главного врача и его коллег по хирургии. Будучи общительным и коммуникабельным по природе он становится председателем местного комитета, народным заседателем товарищеского суда своего учреждения и защищает интересы своих коллег, организует досуг. Заядлый охотник, любитель дикой природы С.А. Степанов совмещает работу с должностью председателя общества охотников своего района.

С 1971 года профессиональная деятельность хирурга высшей категории С.А. Степанова, вплоть до выхода на заслуженный отдых в 1996 году, связана с БСМП города Алма-Аты, где он работал хирургом отделения экстренной хирургии, затем заведующий отделения, которая оказывала многопрофильную хирургическую помощь населению. В БСМП, г.Алма-Аты где кафедру госпитальной хирургии возглавлял главный хирург РК, заслуженный деятель науки, профессор М.И. Брякин, в полной мере раскрылся талант клинициста и организатора С.А. Степанова. В составе кафедры работали военные хирурги широкого диапазона: профессор Т.П. Денягина, доцент М.Г. Маткаримов которые способствовали профессиональному росту Станислава Алексеевича в области торакальной хирургии, травматологии, нейрохирургии. Приглашая на консультацию по экстренной хирургии своих соратников профессора Г.Н. Андреева, профессора Т.К. Кукеева, доцента С.Т. Урашева, С.А. Степанов способствовал росту клинического мышления, как молодых хирургов отделения экстренной хирургии, так и субординаторов, врачей интернов. Не забывал он и о преподавательской деятельности для будущих фельдшеров, медицинских сестер Республиканского, городского медколледжей г. Алматы, проводил занятия и для своего коллектива медсестер и санитарок.

Хирург высшей категории, замечательный организатор С.А. Степанов способствовал становлению и росту своих учеников, таких как С.П. Цибулин, А.К. Алимжанов, В.М. Горшков, доцент Г.К. Мухамеджанов, будущих профессоров А.С. Ибадильдина, А.О. Оспанова, Н.А. Жанталиновой, Б.У. Шалекенова, подготовил плеяду старших медсестер А.Е. Ефимову, В.Д. Авдееву, В.М. Озерову, И.М. Милешкину, В.С. Жылкайдарову.

За значительный вклад в практическое здравоохранение, подготовку практических хирургов, медицинских сестер, труд С.А. Степанова был отмечен почетными грамотами городского отдела здравоохранения, министерства здравоохранения РК, правительственными наградами, медалью «Ветеран труда», государственным знаком отличия «Отличник здравоохранения». Отличный семьянин С.А. Степанов с супругой Ольгой Павловной воспитал трех детей. Сыновья нашли свою дорогу в жизни, старший закончил институт народного хозяйства, младший-сельскохозяйственный институт, работают в разных отраслях народного хозяйства РК. По стопам отца пошла дочь, закончила Алма-Атинский государственный медицинский институт им. С.Д. Асфендиярова и по направлению ВУЗа начинала свою карьеру в г. Акчатау. Доктор медицинских наук, профессор Ирина Станиславовна Степанова в настоящее время работает на кафедре офтальмологии КазНМУ им. С.Д. Асфендиярова, читает лекции, проводит семинары, готовит квалифицированные кадры глазных врачей для РК.

Находясь на заслуженном отдыхе С.А. Степанов занимался воспитанием трех внуков и трех правнуков, активно общаясь с коллегами на заседании общества хирургов г. Алматы.

Десятого апреля 2021 года Станислав Алексеевич Степанов, скоропостижно, на 94 году ушел из жизни.

Станислав Алексеевич Степанов навсегда останется в сердцах соратников, коллег и друзей как выдающийся хирург, надежный товарищ и коллега.

Редакционный совет журнала «Вестник хирургии Казахстана», профессор А.С. Ибадильдин

Памяти доцента Жуловчинова М.У.

Жуловчинов М.У. родился 01.10.1953 года в г. Москве. Закончил Новосибирский государственный медицинский институт в 1980 году. В 1991 году защитил диссертацию на соискание ученой степени кандидата медицинских наук на тему: «Оптимизация хирургической тактики при ущемлённых грыжах у больных старшей возрастной группы», под руководством известного учёного профессора Шалькова Ю.Л.

Практическую деятельность Жуловчинов М.У. начал в ЦГКБ г. Алматы на должности врача-хирурга и заведующего хирургическим отделением. В 1991 году принят ассистентом кафедры госпитальной хирургии КазНМУ им. С.Д. Асфендиярова, затем прошел по конкурсу на должность доцента кафедры. С 2017 г. в должности доцента кафедры общей хирургии. Практические занятия со студентами проводил на базах областной клинической больницы ГКБ №7 и БСМП. В последние годы жизни работал в КРМУ на должности ассоциированного профессора.

В практической медицине имел высшую категорию врача хирурга. Имел 66 печатных работ в медицинских журналах РК, автор 6 рационализаторских предложений. В 2010 году выпустил учебно-методическое пособие для студентов и интернов-хирургов: «Острая кишечная непроходимость». Вместе с учителем, профессором Шальковым В.Л., выпустил монографию «Острая кишечная непроходимость – научные и практические аспекты», которая вышла в 2013 г., в Алматы.

Будучи талантливым хирургом до последних дней проводил сложные оперативные вмешательства, консультировал тяжелых больных. Пользовался заслуженным авторитетом у своих коллег, студентов и спасенных больных. Воспитал не одно поколение хирургов. За свою жизнь провел около 30 тысяч операций. Был хорошим семьянином. Воспитал троих сыновей и одну дочь.

Жуловчинов Марат Уразайулы скоропостижно скончался 25 апреля 2021 года в г. Алматы. Коллектив кафедры, ученики выражают глубокое соболезнование семье и родным Жуловчинова М.У.

Редакционный совет журнала «Вестник хирургии Казахстана», профессор А.С. Ибадильдин

Памяти профессора Муканова Марата Умирбековича

Я хочу за собой оставить
Ослепительный яркий след.
Пусть останется людям на память
Жизнь моя – словно выпавший снег…

Это строки одного из многочисленных стихотворений Марата Умирбековича Муканова, которые проникают до глубины души. Всю свою сознательную жизнь он посвятил спасению пациентов и обучению молодых специалистов, оставив за собой целую школу учеников. Выдающийся врач-хирург, талантливый ученый, великолепный педагог, доктор медицинских наук, профессор скоропостижно ушел из жизни 2 марта 2021 года в возрасте 65 лет.

Марат Умирбекович Муканов родился в 1955 году в поселке Карсакпай Карагандинской области в семье известного хирурга Центрального Казахстана, кандидата медицинских наук, почетного гражданина г. Жезказгана Умирбека Мукановича Муканова.

Марат Умирбекович закончил лечебный факультет Карагандинского государственного медицинского института в 1979 г. В 1988 г. защитил кандидатскую диссертацию по теме «Хирургическое лечение ложных кист и оментобурситов поджелудочной железы» в КазНИИЭиКХ им. А.Н. Сызганова. В 1997 г. защитил докторскую диссертацию по теме «Острая спаечная кишечная непроходимость, обусловленная висцеропариетальными спайками» при Диссертационном совете ММСИ им. Н.А. Семашко (г. Москва). В 2001 году получил звание профессора ВАК РК.

После ординатуры с 1989 г. работал заведующим хирургическим отделением больницы №1 г. Жезказгана, был главным хирургом города. С 1994 по 2019 г. работал в КазНМУ им. С.Д. Асфендиярова профессором кафедры хирургических болезней №2, занимал должность первого директора Учебного департамента хирургии, заведовал кафедрой общей хирургии. С сентября 2019 по 2021г. занимал должность профессора клинических специальностей Высшей школы медицины факультета медицины и здравоохранения КазНУ им. аль-Фараби.

М.У. Муканов – автор более 150 научных публикаций, имеет более 30 авторских свидетельств на изобретения и способы лечения, которые эффективно используются в практической хирургии в Казахстане и за пределами страны, выпустил две монографии и три учебно-методических пособия, под его руководством защищена одна докторская диссертация. Марат Умирбекович являлся экспертом Независимого казахстанского агентства по обеспечению качества в образовании, привлекался к анализу жалоб и летальных исходов по линии Минздрава РК, городского, областного Управления здравоохранения.

Решением Совета директоров ННЦХ им. А.Н. Сызганова на VI Конгрессе хирургов Казахстана (2015 г.) награжден дипломом и золотой медалью. В 2019 году награжден серебряной медалью КазНМУ им. С.Д. Асфендиярова.

Марат Умирбекович пользовался заслуженным авторитетом у коллег и пациентов. Его отличала глубокая человечность, подлинная интеллигентность и высокий профессионализм. Благодаря своему опыту, знаниям, высоким морально-этическим принципам он воспитал плеяду высококлассных хирургов. До последних дней Марат Умирбекович оперировал сложных пациентов в клиниках г. Алматы.

М.У. Муканов был надежной опорой для своей семьи, любящим мужем, примером для своих детей и внуков. Писать стихотворения – это второе призвание Марата Умирбековича после его основной профессии. Он сочинял и для детей, и для взрослых. Вдохновение к нему всегда приходило внезапно. Написав пару строк, он мог продолжать заниматься своими делами. На листке бумаги он раскрывал свою душу и показывал свое отношение к близким и окружающим. Детские стихотворения он писал как будто от лица детей – в это время он и сам был ребенком. Читая его стихотворения, невольно погружаешься в ту атмосферу, которую он описывал. В его стихах присутствуют нотки грусти и печали, говоря нам о том, чтоу него очень тонкая, чувствительная и ранимая душа. Нежность, влюбленность, тоска и детская непосредственность – все это отразил Марат Умирбекович в своих красивых произведениях.

Марат Умирбекович Муканов – человек с большой буквы, настоящий профессионал своего дела и замечательный автор красивой лирики, он оставил о себе достойную память. Имя Марата Умирбековича Муканова навсегда останется в наших сердцах.

Я не буду писать мемуары
В серых, толстых и скучных томах,
Я хочу, чтобы жизнь прозвучала,
Пусть в коротких, но в ярких стихах.
Я хочу за собой оставить
Ослепительный яркий след.
Пусть останется людям на память
Жизнь моя – словно выпавший снег.
Словно след от безумной кометы
Вспыхнуть ярким огнем на миг,
Ослепив всю ночную планету
И людей навсегда ослепив.
Только путь у кометы короткий,
Снег не долго будет лежать,
У природы законы жестоки,
По закону и нам умирать.
Что останется после смерти,
И вернемся ли мы опять,
К сожалению, никто не ответит,
Да и надо ль ответа искать...

Муканов М.У. (май 2001 г.)

Редакционный совет журнала «Вестник хирургии Казахстана», профессора А.С.Ибадильдин, Н.А.Жанталинова

ТРЕБОВАНИЯ ДЛЯ АВТОРОВ ЖУРНАЛА «ВЕСТНИК ХИРУРГИИ КАЗАХСТАНА»

Уважаемые авторы!

С 1 апреля 2018 года все статьи на публикацию принимаются на государственном или русском языках с обязательным переводом всей статьи на английский язык. Статьи без версии на английском языке будут отклонены.

Также учитывая требования Консультативной Комиссией (CSAB) Scopus об интернационализации авторов и аудитории редколлегия журналов рекомендуют публиковать статьи в соавторстве с учеными дальнего и ближнего зарубежья.

В журнале публикуются научные статьи и заметки, экспресс-сообщения о результатах исследований в различных областях естественно-технических и общественных наук.

Решение о публикации принимается редакционной коллегией журнала после рецензирования, учитывая научную значимость и актуальность представленных материалов. Статьи, отклоненные редакционной коллегией, повторно не принимаются и не рассматриваются. Рукописи, оформленные не по правилам, возвращаются авторам без рассмотрения.

Рукопись направляется на отзыв члену редколлегии и одному из указанных рецензентов; в спорных случаях по усмотрению редколлегии привлекаются дополнительные рецензенты; на основании экспертных заключений редколлегия определяет дальнейшую судьбу рукописи: принятие к публикации в представленном виде, необходимость доработки или отклонение. В случае необходимости рукопись направляется авторам на доработку по замечаниям рецензентов и редакторов, после чего она повторно рецензируется, и редколлегия вновь решает вопрос о приемлемости рукописи для публикации. Переработанная рукопись должная быть возвращена в редакцию в течение месяца после получения авторами отзывов; в противном случае рукопись рассматривается как вновь поступившая. Рукопись, получившая недостаточно высокие оценки при рецензировании, отклоняется как не соответствующая уровню или профилю публикаций журнала.

Авторы несут ответственность за достоверность и значимость научных результатов и актуальность научного содержания работ. Не допускается **ПЛАГИАТ** – умышленно совершаемое физическим лицом незаконное использование чужого творческого труда, с доведением до других лиц ложных сведений о себе как о действительном авторе.

Редакция принимает на рассмотрение рукописи только на английском языке, присланные через официальный сайт журнала **www.vhk.kz.**

Материал статьи – абстракт на казахском, русском и английском языках, список литературы, рисунки, подписи к рисункам и таблицы, оформляется одним файлом; дополнительно каждый рисунок оформляется в виде отдельного файла. Если пересылаемый материал велик по объему, следует использовать программы для архивирования. Все страницы рукописи, в том числе таблицы, список литературы, рисунки и подписи к ним, следует пронумеровать.

Представленные для опубликования материалы должны удовлетворять следующим требованиям:

1. Содержать результаты оригинальных научных исследований по актуальным проблемам в области физики, математики, механики, информатики, биологии, медицины, геологии, химии, экологии, общественных и гуманитарных наук, ранее не опубликованные и не предназначенные к публикации в других изданиях. Статья сопровождается разрешением на опубликование от учреждения, в котором выполнено исследование.
2. Размер статьи 7-10 страниц (статьи обзорного характера – 15-20 стр.), включая аннотацию в начале статьи перед основным текстом, которая должна отражать цель работы, метод или методологию проведения работы, результаты работы, область применения результатов, выводы (**аннотация** не менее **20** предложений (150»300 слов) - (на английском языке) через 1 компьютерный интервал), таблицы, рисунки, список литературы (через 1 компьютерный интервал, размер шрифта – 14), напечатанных в редакторе Word, шрифтом Times New Roman, поля – верхнее и нижнее – 2 см, левое –3 см, правое –1,5 см. Количество рисунков – 5-10.

Структура должна соответствовать международной формуле IMRAD, где I – introduction (вступление), M – Methods (методы), R – Results (исследование), A – и, D – conclusion+ discussion (заключение, обсуждение результатов и выводы).

Название • Отображает суть работы • Краткое • Без аббревиатур.

Необходимо официально закрепить название организации на английском и сокращение

Резюме • Структурировано • Без аббревиатур • Передает структуру статьи – Зачем (актуальность) – Какими методами? – Что получено – Как это изменило картину знаний. Именно его читают в первую очередь, только хорошее резюме может привлечь внимание!

Вступление • Актуальность работы • Какая задача поставлена • Почему

Методы • Перечисление • Если известные - дать ссылку • Если модифицировали – указать как • Описывать так что б могли повторить • Статистика!

Результаты • Допускается не хронологическое, а логическое повествование • Основные, а не все что были сделаны •

Иллюстрируются минимально необходимыми сводными данными (исходные могут быть в дополнительных материалах)

Обсуждения • Не повторять результаты • Сопоставить полученные данные с имеющимися • Обсудить возможные причины и следствия

Функции списка литературы: • Аргументировать идею • Сопоставить с существующими аналогами • Обозначить место данного исследования • Избежать плагиата • Для журнала и ученого = признание • Часто указаны только собственные работы или очень старые (самоцитирование допускается только 10-15% от общего списка литературы) • Кочующие ошибки

Различайте • Ссылки • Список литературы • Библиография

Что могут цитировать • Книги, (монографии, главы) • Статьи научных журналов • Материалы конференций • Патенты • Диссертации • Неопубликованные данные • СМИ • Веб ресурсы (протоколы, веб странички) Источник должен быть надежным и легко доступным.

Статья начинается на английском языке. В начале, посередине страницы, идет название статьи прописными жирными буквами, название статьи должно быть коротким и емким, согласно проведенного анализа около 30-40 символов на английском языке.

Далее на следующей строчке – инициалы и фамилии авторов обычным жирным шрифтом, затем на следующей строчке – название организации(ий), в которой выполнена работа, город, страна, затем на новой строчке – адреса E-mail авторов. С красной строки идут ключевые слова **(Key words),** а на новой строчке – сама аннотация (**Abstract** – не менее **150** и более **300 слов**).

Далее, после отбивки одной строки, начинается на русском языке. В начале статьи вверху слева следует указать индекс **УДК, МРНТИ.**

Затем, посередине страницы, пишется: 1) название статьи; 2) авторы; 3) название организации; с красной строки – **Ключевые слова,** затем – **Аннотация** (оформление шрифтов, как на английском языке).

Отбиваем одну строку и начинается сама **статья.** Следом за статьей идет список **Литературы.** Ссылки на литературные источники даются цифрами в прямых скобках по мере упоминания (не менее 20).

Для каждой статьи обязателен DOI (Digital Object Identifier) - это цифровой идентификатор документа. DOI выполняет функцию гиперссылки, которая всегда помогает найти нужный документ, даже если сайт, где он находился ранее, был впоследствии изменен. Благодаря этому индексу поиск научной информации в Интернете стал проще и эффективнее. Каждое издание, журнал размещает на своих веб-страницах в интернете, как текущие, так и архивные номера, и материалы. Таким образом, в открытом доступе можно увидеть резюме, которые включают в себя название статьи, фамилию, имя, отчество автора, аннотацию и ключевые слова, место выполнения работы, а также выходные данные опубликованных статей (название журнала, год издания, том, номер, страница).

Список литературы оформляется следующим образом:

В ссылках на книги указывается ISBN (10- или 13-значный). Сокращаются названия только тех журналов, которые указаны: http://images.webofknowledge.com/WOK46/help/WOS/0-9_abrvjt.html.

Для всех ссылок на статьи, опубликованные в международных рецензируемых журналах следует указывать DOI (Digital Object Identifier). DOI указываются в PDF версии статьи и/или на основной интернет-странице статьи, также можно воспользоваться системой поиска CrossRef: http://www.crossref.org/guestquery/. Ниже приводятся примеры оформления ссылок:

Статья в международном журнале:

1. Campry TS, Anders T. (1987) SNAP receptors implicated in vesicle targeting and fusion, Environ Pollut, 43:195-207. DOI: 10.1016/0269-7491(87)90156-4 (in Eng)

Статья в русскоязычном журнале, не имеющая англоязычной версии:

2. Ivanova TV, Samoilova NF (2009) Electrochemical Energetics [Elektrohimicheskaya energetika] 9:188-189. (In Russian)

Книги:

Timrat TA (2008) Soil pollution: origins, monitoring and remediation, second edition. Springer, Germany. ISBN: 978-3-540-70777-6

Материалы конференции:

Monin S.A. (2012) Treatment techniques of oil-contaminated soil and water aquifers. Proceedings of International Conference on Water Resources and Arid Environment, Riyadh, Saudi Arabia. P.123.

Патенты:

Barin AB, Mukamedzhan NT (2000) A method for determination of 1,1-dimethylhydrazine and nitrosodimethylamine [Metodopredeleniya 1,1-dimetilgidrazina initrosodimetilamina]. Preliminary Patent of the Republic of Kazakhstan [Predvaritelnyi patent Respubliki Kazakhstan]. (In Russian)

Стандарты, ГОСТы:

RMG 61-2003. Indexes of accuracy, precision, validity of the methods of quantitative chemical analysis, methods of evaluation [GSI.Pokazatelitochnosti, pravilnosti, retsizionnosti metodik kolichestvennogo himicheskogo analiza. Metodyiotsenki]. Moscow, Russia, 2003. (In Russian)

На сайте http://www.translit.ru/ можно бесплатно воспользоваться программой транслитерации Русского текста в латиницу, используя различные системы. Программа очень простая, ее легко использовать для готовых ссылок. К примеру, выбрав вариант системы Библиотеки Конгресса США (LC), мы получаем изображение всех буквенных соответствий. Вставляем в специальное поле весь текст библиографии на русском языке и нажимаем кнопку «в транслит».

В конце статьи дается резюме на казахском языке. Оформляется аналогично русскому варианту. Посередине страницы пишется: 1) название статьи; 2) авторы; 3) название организации; с красной строки – **Өзекті сөздер,** после – **Аннотация.**

Последняя страница подписывается всеми авторами, ставится дата.

3. Статьи публикуются только на английском языке.

4. В случае переработки статьи по просьбе редакционной коллегии журнала датой поступления считается дата получения редакцией окончательного варианта. Если статья отклонена, редакция сохраняет за собой право не вести дискуссию по мотивам отклонения.