www.wordlyknowledge.uz Volume: 2, Issue: 1, 2023

UDC: 616.379-008.64+ 616-005.4+ 616-009.88

TACTICS FOR SELECTION OF ANTIMICROBIAL THERAPY IN PATIENTS WITH COMPLICATED FORM OF DIABETIC FOOT SYNDROME

Ushakov Sergey Nikolaevich[1.1], Rakhimov Azizjon Yakhyoyevich[1.2]

[1.1] Assistant of the department of faculty and hospital surgery, Bukhara Medical Institute, Bukhara city, Republic of Uzbekistan, ORCID ID 0000-0002-5294-1692

[1.2] PhD, Associate Professor, Department of Faculty and Hospital Surgery, Bukhara Medical Institute, Bukhara, Republic of Uzbekistan, ORCID ID 0000-0002-5557-4082

ANNOTATION: According to WHO statistics, the number of patients with diabetes mellitus in the world is constantly increasing. Currently, there are more than 400 million patients with diabetes mellitus, the number of patients with DM II, more than 10 times more than the number of patients with DM I, despite the large number of patients, some authors say that the real number of patients is more than 3-4 times. Due to the increasing number of patients, the number of complicated forms is also increasing, and their treatment is much more complicated than that of diabetes mellitus itself. The most frequent complication of diabetes is foot disease, the so-called diabetic foot syndrome, which leads to significant suffering of patients, but also requires large financial costs for the treatment of such patients. Most often, patients have "corns", dry corns, etc., which can lead to ulcerative lesions of the feet. The reason for this is sensory and motor diabetic neuropathy, lesions of peripheral arteries. As ulcers are a priori infected, and subsequently it can lead to further progression of the disease and more severe complications, such as phlegmon, osteomyelitis, osteoarthritis of the joints of the feet, which can lead to amputation of the lower limb at one level or another. Annually, more than 1 million amputations at one or another level are performed worldwide in patients with DFS. Based on the above stated, it is clear that complications of SDS are a significant social and economic problem all over the world, prevention and treatment of this pathology is the most important task

Key words: diabetes mellitus, trophic ulcer, phlegmon, ischemia, neuropathy.

УДК: 616.379-008.64+ 616-005.4+ 616-009.88

ТАКТИКА ПОДБОРА ПРОТИВОМИКРОБНОЙ ТЕРАПИИ У ПАЦИЕНТОВ С ОСЛОЖНЕННОЙ ФОРМОЙ СИНДРОМА ДИАБЕТИЧЕСКОЙ СТОПЫ

Ушаков Сергей Николаевич[1.1], Рахимов Азизжон Яхеевич[1.2]

[1.1] Ассистент кафедры факультетской и госпитальной хирургии Бухарского медицинского института, город Бухара, Республика Узбекистан, ORCID ID 0000-0002-5294-1692

[1.2]Кандидат медицинских наук, доцент кафедры факультетской и госпитальной хирургии Бухарского медицинского института, Бухара, Республика Узбекистан, ORCID ID 0000-0002-5557-4082

АННОТАЦИЯ:По статистике ВОЗ, количество больных сахарным диабетом в мире постоянно увеличивается. В настоящее время насчитывается более 400 млн больных сахарным диабетом, число больных СД II более чем в 10 раз превышает число больных СД I, несмотря на большое число больных, некоторые авторы говорят о том, что реальное число больных СД II превышает число больных СД I. больных более чем в 3-4 раза. В

www.wordlyknowledge.uz Volume: 2, Issue: 1, 2023

связи с увеличением числа больных увеличивается и число осложненных форм, лечение которых значительно сложнее, чем лечение самого сахарного диабета. Наиболее частым осложнением сахарного диабета является болезнь стопы, так называемый синдром диабетической стопы, который приводит к значительным страданиям больных, но и требует больших финансовых затрат на лечение таких больных. Чаще всего у больных наблюдаются «мозоли», сухие мозоли и т. д., что может привести к язвенному поражению стоп. Причиной этого являются сенсорная и моторная диабетическая нейропатия, поражение периферических артерий. Поскольку язвы априори инфицированы, в последующем это может привести к дальнейшему прогрессированию заболевания и более тяжелым осложнениям, таким как флегмона, остеомиелит, остеоартрит суставов стоп, что может привести к ампутации нижней конечности на одном уровне или другой. Ежегодно во всем мире у пациентов с СДС выполняется более 1 миллиона ампутаций на том или ином уровне. На основании вышеизложенного становится ясно, что осложнения СДС являются значимой социальной и экономической проблемой во всем мире, профилактика и лечение этой патологии являются важнейшей задачей.

Ключевые слова: сахарный диабет, трофическая язва, флегмона, ишемия, нейропатия.

UDC: 616.379-008.64+ 616-005.4+ 616-009.88

DIABETIK OYOQ SINDROMINING MURAKKAB SHAKLI BO'LGAN BEMORLARDA ANTIMIKROBIYAL TERAPIYANI TANLASH TAKTIKASI

Ushakov Sergey Nikolaevich[1.1], Raximov Azizjon Yaxyoyevich[1.2]

[1.1] O'zbekiston Respublikasi, Buxoro shahri, Buxoro tibbiyot instituti fakultet va gospital xirurgiya kafedrasi assistenti, ORCID ID 0000-0002-5294-1692

[1.2] PhD, dotsent, fakultet va gospital xirurgiya kafedrasi, Buxoro tibbiyot instituti, Buxoro, O'zbekiston Respublikasi, ORCID ID 0000-0002-5557-4082

АННОТАЦИЯ:JSST statistik ma'lumotlariga ko'ra, dunyoda qandli diabet bilan kasallanganlar soni doimiy ravishda o'sib bormoqda. Hozirgi vaqtda diabetes mellitus bilan og'rigan bemorlar soni 400 milliondan ortiq bo'lib, II DM bilan kasallanganlar soni I DM bilan kasallanganlar sonidan 10 baravar ko'p, bemorlarning ko'pligiga qaramay, ba'zi mualliflarning ta'kidlashicha, bemorlarning haqiqiy soni. bemorlar 3-4 martadan ko'proq. Bemorlar sonining ko'payishi tufayli murakkab shakllar soni ham ko'paymoqda va ularni davolash diabetes mellitusning o'ziga qaraganda ancha murakkab. Qandli diabetning eng tez-tez uchraydigan asorati - bu diabetik oyoq sindromi deb ataladigan oyoq kasalligi, bu bemorlarning jiddiy azoblanishiga olib keladi, ammo bunday bemorlarni davolash uchun katta moliyaviy xarajatlarni talab qiladi. Ko'pincha bemorlarda "makkajo'xori", quruq makkajo'xori va boshqalar bor, bu esa oyoqlarning yarali lezyonlariga olib kelishi mumkin. Buning sababi sensorli va motorli diabetik neyropatiya, periferik arteriyalarning shikastlanishi. Yaralar apriori infektsiyalanganligi sababli, bu kasallikning yanada kuchayishiga va flegmona, osteomielit, oyoq bo'g'imlarining osteoartriti kabi og'irroq asoratlarga olib kelishi mumkin, bu esa pastki oyoq-qo'llarning bir darajada amputatsiyasiga olib kelishi mumkin. boshqa. Har yili dunyo bo'ylab SDS bilan og'rigan bemorlarda u yoki bu darajadagi 1 milliondan ortiq amputatsiya amalga oshiriladi. Yuqorida qayd etilganlardan kelib chiqqan holda, SDS asoratlari butun dunyoda muhim ijtimoiy-iqtisodiy muammo bo‘lib, ushbu patologiyaning oldini olish va davolash eng muhim vazifa ekanligi ayon bo‘ladi.

Kalit so'zlar: qandli diabet, trofik yara, flegmona, ishemiya, neyropatiya.

www.wordlyknowledge.uz Volume: 2, Issue: 1, 2023

Introduction: Treatment of diabetic foot infection is currently the most challenging problem. Foot infection in patients in DM, is a pathologic condition associated with a decrease in comfort level of life, physiologic and psychological state of patients with DM, the need for constant observation and treatment by specialized specialists in a medical facility, antibiotic therapy, wound care and not infrequent surgical manipulations. Often this condition requires treatment in a specialized surgical department, often leading to amputations at various levels. Control of infection requires considerable effort, correct diagnosis (neuropathy or neuroischemia), collection of material from the wound defect and isolation of the microbial agent with sensitivity to antibacterial agents, for selection of adequate empirical and evidence-based antimicrobial therapy. Patients with DM have a significant susceptibility to various types of infections, which is associated with decreased immune response, dysfunction of leukocytes, monocytes and lymphocytes. As a rule, wound infection in DFS passes to the chronic stage of inflammation, subsequently to the formation of biofilms, which reduces the sensitivity to antibiotic therapy hundreds of times. However, antibiotic therapy is not the main panacea in the treatment of diabetic foot ulcers, which should be based on:

1. Relief of the affected area of the limb (level of evidence 2B);
2. Sanitation of the wound defect (level of evidence 1A);
3. Use of modern dressings and creation of a moist environment (level of evidence 3A) and mandatory control of exudation (level of evidence 1A);
4. antibiotic therapy depending on the results of microbiologic examination (level of evidence 2C).

Antimicrobial therapy in patients with complications of DFS is critically necessary in deep lesions and systemic inflammatory response. Antimicrobial treatment until the results of cultures are available, should be started from the presumed origin of the bacteria, after the results are available, specific depending on the type of pathogen and its sensitivity to antibacterial drugs.

Purpose of the study: to investigate the indications for the use of antibacterial drugs according to the results of bacterial seeding from wounds in patients with complicated DFS

Materials and methods:

The results of the study of 246 patients treated in the department of purulent surgery in 2021 were analyzed. The most frequently isolated microorganisms were Gram-positive cocci - most often Staphylococcus aureus, from Gram-negative - Pseudomonas bacillus and associations of bacteria. For the study on the type of microflora, the investigated material was taken from the wound according to the rules of sterility. The skin around the wound was treated with antiseptics (betadine, aqueous and/or alcoholic chlorhexidine solution, iodopyron, etc.). The material was collected with a sterile cotton swab, and the wound contents (exudate, pus, detritus, necrotic masses) were previously removed. The material was collected by circular rotational movements from the center of the wound to the edges and sent to the laboratory within 1 hour, if impossible, it was stored in the refrigerator for no more than 2 hours. Seeding was performed simultaneously on 3 types of nutrient media: 5% blood agar, sugar broth, simple nutrient agar and endo medium. In addition to identification of the microbial pathogen, a sensitivity study to antibacterial drugs was performed simultaneously.

Results and Discussion:

400 studies were conducted. The structure of pathogens in complicated forms of DFS was distributed as follows

1.Staphylococcus aureus- 56% and 44%
2.Pseudomonas+Acinetobacter spp 20% and 25%
3.Staphylococcus MRSA 14% and 19%
4.Enterobacter spp 10% and 12%
5.Enterococcus 4.3% and 4.4%

www.wordlyknowledge.uz Volume: 2, Issue: 1, 2023

6.Candida spp 1.7% and 2.5%
7. Streptococcus spp 1.5% and 1.5%
When analyzing the obtained data it was revealed that in primary microbial flora in complicated forms of DFS, Staphylococcus aureus predominates,

Table1

Resistance to antibiotic therapy of non-fermenting bacteria

Antibiotic	Pseudomonas aeruginosa	Acitenobacter baumanii
Piperacillin+Tazobactam	34,3%	0%
Imepemem	56,4%	0%
Meronem	53,1%	0%
Ceftazidime	60,9%	100%
Ciprofloxacin	56,7%	100%
Amikacin	36,1%	100%

Table 2

Resistance to antibiotic therapy of Enterobacter

Antibiotic	Enterobacter cloacea	Escherichia. Coli
Piperacillin+Tazobactam	100%	0%
Imepemem	0%	0%
Meronem	0%	0%
Ceftazidime	64,3%	0%
Ciprofloxacin	50%	100%
Amikacin	51,3%	51,3%

Table 3

Resistance to antibiotic therapy of Staphylococcus aureus and Staphylococcus aureus MRSA

Antibiotic	Staphylococcus aureus	Staphylococcus aureus MRSA
Oxacillin	20%	100%
Cefazolin	4,9%	100%
Lincomycin	13,1%	12,9%
Azithromycin	20,5%	43,2%
Ciprofloxacin	31,0%	100%
Amikacin	0%	0%
Co-trimoxazole	2,3%	30%
Vancomycin	0%	0%
Linezolid	0%	0%

Table 4

Resistance to antibiotic therapy of hospitalized Enterobacteriaceae

Antibiotic	Escherichia coli	Klebsiella pheumoniae
Piperacillin+Tazobactam	49%	50%
Imepemem	0%	0%
Meronem	0%	0%
Ceftazidime	0%	0%
Ciprofloxacin	100%	100%
Amikacin	0%	51%
Amoxicillin/clavul	100%	100%

www.wordlyknowledge.uz Volume: 2, Issue: 1, 2023

Currently, antibiotic therapy is one of the important components in the complex treatment, complicated forms of DFS. Inadequately controlled infection can significantly complicate the course of the disease and question the preservation of the limb and possibly the life of the patient. The surgeon faces the difficult question of prescribing adequate and effective antibiotic therapy. With modern competent approach, the selection of effective antibacterial therapy is not questionable and allows to save the patient from amputation and reduce lethality. The study revealed that the most frequently detected Gram-positive cocci, mainly Staphylococcus aureus and Staph. MRSA (up to 56%), from gram-negative flora - Enterobacter spp. (12%) and Pseydomonas+ Acinetobacter spp. (up to 20%). The data of microbiological study and the most frequently occurring pathogens are presented in tables (1,2,3,4). The given data show resistance by groups of antibacterial drugs and variability of prescription of certain drugs depending on the causative agent and its effectiveness of application for treatment of complicated forms of DFS. Based on the above it is shown that the appointment of antibacterial drugs is individualized for each patient and should be carried out taking into account the bacterial agent and its sensitivity to antibacterial drugs, which will significantly increase the effectiveness of therapy.

Conclusions:

1. Out-of-hospital infection in patients with SDS is represented by 70% gram-positive flora (staphylococci, streptococci, enterococci)
2. Acquired nosocomial flora in 63.4% of cases is represented by Gram-negative microorganisms (Klebsiella, Enterobacter, C. coli).
3. In case of long-term antibiotic therapy it is necessary to control cultures for microflora and sensitivity, which, as a rule, mutates with long-term use of drugs.
4. Due to the prolonged course of the wound process in patients with complicated SDS there is a high risk of reinfection with hospitalized highly resistant strains.
5. Changing the scheme of antibacterial drugs use in patients with diabetic foot syndrome on the basis of constant microbiological research allows to use the most effective treatment schemes, which improves the dynamics in the treatment of SDS complications.

Literature:

1. Dedov I.I., Shestakova M.V. Algorithms of specialized medical care for patients with diabetes / I.I.Dedov, M.V.Shestakova.// M.,-2009.-101 p.
2. Dedov I.I. Shestakova M.V. Diabetes mellitus: retinopathy, nephropathy / I.I. Dedov, T.M. Milenkaya, M.V. Shestakov//.-Medicine,- 2001 - 176 pp.
3. Dedov I.I. Shestakova M.V. Diabetes mellitus / I.I. Dedov, M.V. Shestakova / Luniversum Publishing.-M., - 2003 - 455c.
4. Dedov I.I. Rational pharmacotherapy of diseases of the endocrine system and metabolic disorders / Edited by Acad. RAS and RAMS, Prof. Dedov I.I.; Acad. RAMS, Prof. Melnichenko TLI. -2nd edition, revised and supplemented - M.: Litterra, - 2013 - 1024 p.
5. Dedov I.I., Vikulova O.K., Sukhareva O.Y., Suntsov Y.I. Screening of diabetic nephropathy in the Russian Federation. / I.I.Dedov (ed.). Diabetes mellitus and chronic kidney disease.- M.-, 2009-. C. 39-59.
6. Dedov I.I., Suntsov Y.I., Kudryakova C.B.. Economic problems of diabetes mellitus in Russia/.I.I.Dedov, Yu.I.Suntsov, S.V.Kudryakova // Saharny Diabetes-, 2000, - № 3-S.56-58.
7. Eryukhin I.A., Gelfand B.R.,. Shlyapnikov S.A. Surgical infections: A practical guide / I.A. Eryukhin, B.R. Gelfand, S.A. Shlyapnikov //. Edition 2nd revised and supplemented. (Series "Practical Guides" - Litterra - 2006 - 736c .

www.wordlyknowledge.uz Volume: 2, Issue: 1, 2023

8. Kozlov P.C. Selection of resistant microorganisms in the use of antimicrobial agents: the concept of "parallel damage"// Clinical Microbiology and Antimicrobial Therapy -2010- № 12 (4)-C. 284-294
9. Kozlov R.S., Dehnich A.V Handbook of antimicrobial therapy. / P.C. Kozlov, A.B. Dehnich// Issue 2- Smolensk: MAKMAH,- 2010- 416c.
10. Kozlov P.C., Dehnich A.B.. Reference book on antimicrobial therapy. / Edited by P.C. Kozlov, A.B. Dehnich// - Issue 3.-Smolensk: MAKMAH,- 2013-480c.
11. Kozlov P.C. Sivaya O.V. Shpynev K.V. Antibiotic resistance Streptococcus pyogenes in Russia: the results of multicenter prospective study PeGAS-I / P.C. Kozlov, O.V. Sivaya, K.V. Shpynev // Clinical Microbiology and Antimicrobial Chemotherapy - 2005.- № 7 (2).- P154-166.
12.Korovin E.H.. Methods of biomedical data processing:textbook / E.N.Korovin, O.V.Rodionov. - Voronezh: VGTU, 2007. - 152c.
13. Mukhin N.A., Kozlovskaya L.V., Shilov E.M., Gordovskaya N.B. et al. Rational pharmacotherapy in nephrology: Ruk. For practicing physicians; / Under the general ed. H.A. Mukhin, L.V. Kozlovskaya, E.M. Shilova// Rational Pharmacotherapy: Series of Guides for Practicing Physicians.- M. Litterra, - 2006 - T13.- 896 p.
14.Nikolaeva K.V. Experience of treatment of purulent-necrotic foot diseases in patients with diabetes mellitus in conditions of purulent-necrotic department / K.V. Nikolaeva [et al.] // Bulletin of East Siberian Scientific Center SB RAMS. - 2008. - № 3. - C. 121 - 122.
15.0kulich, O.V. Rational use of antibiotics in the treatment of purulent-necrotic forms of diabetic foot / V.K. Okulich [et al.] // Bulletin of Vitebsk State Medical University. - 2011. -T. 10, № 1.-C. 99-99.
16. Rakhimov A.Ya., Qurbonov O.M. Sagdullayeva G.U.,Safoyev B.B.,Latipov O.Z. Transcutaneous oximetry as the choice of the research for determination of level of amputation of the crus at critical ischemia of the lower extremities at patients with the diabetes mellitus//Asian Journal of Multidimensional Research. AJMR, Vol 8, Issue 12, December 2019, p. 120-125. Impact Factor: SJIF 2018 = 6.053
17. Rakhimov A.Ya. The Effectiveness of Traditional the Method of Amputation and Treatment at the Lower Leg Level of Patients with Diabetic Foot Syndrome with Critical Lower Limb Ischemia. European Journal of Life Safety and Stability (EJLSS) ISSN2660-9630. www.ejlss.indexedresearch.org Volume 19, July-2022
18. Rakhimov A.Ya. Studying The Activity Of In Vitro Antiseptics Decasan, Furacillin and Chlorhexidine Bigluconate Against Hospital Strains of S. Aureus, E. Coli, Klebsiella Spp., P. Melaninogenica Separated from the Bed of the Soleus Muscle Texas Journal of Medical Science ISSN NO: 2770-2936, https://zienjournals.com Date of Publication:26-07-2022
19. A.Ya. Rakhimov, O.M. Kurbanov, Sh.G.Mirsoliev. The influence of diabetes mellitus on the course of purulent thoracic surgical pathologies World Bulletin of Public Health (WBPH)Available Online at: https://www.scholarexpress.netVolume-15, October 2022ISSN: 2749-3644
20. А.Я.Рахимов, Б.Б.Сафоев. Ампутация нижней конечности на уровне голени как выбор операции при критических ишемиях нижней конечности у больных сахарным диабетом//Новый день в медицине. (NDM).2020-№3 (31). P. 446-449.