MICROORGANISMS THAT CAUSE PURULENT INFLAMMATION: THE CONSEQUENCES OF THE EFFECTS OF STAPHYLOCOCCI AND STREPTOCOCCI ON THE BODY

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Abstract. *Purulent diseases of skin and soft tissues occupy the leading place among surgical infections, both in terms of frequency of development and possible complications, and the third place by frequency in the etiologicalv structure of sepsis [1, 2, 3, 4]. The causative factors of purulent skin and soft tissue infections are usually bacteria and often in polymicrobial composition: Staphylococcus aureus, Streptococcus spp. (Streptococcus pyogenes, less frequently group B, C and G streptococcoci), Enterobacteriaceae and anaerobic microorganisms (Bacteroides fragilis group and Clostridium spp.) [3, 5, 6].*

Keywords: *Streptococcus, T-cells, haemolytic streptococcus, Schenlein-Genoch haemorrhagic vasculitis, immune system.*

МИКРООРГАНИЗМЫ, ВЫЗЫВАЮЩИЕ ГНОЙНЫЕ ВОСПАЛЕНИЯ: ПОСЛЕДСТВИЯ ВОЗДЕЙСТВИЯ СТАФИЛОКОККОВ И СТРЕПТОКОККОВ НА ОРГАНИЗМ

Аннотация. *Гнойные заболевания кожи и мягких тканей занимают ведущее место среди хирургических инфекций, как по частоте развития, так и по возможным осложнениям, и третье место по частоте в этиологической структуре сепсиса [1, 2, 3, 4]. Возбудителями гнойных инфекций кожи и мягких тканей, как правило, являются бактерии, причем часто в полимикробном составе: Staphylococcus aureus, Streptococcus spp. (Streptococcus pyogenes, реже стрептококки групп B, C и G), Enterobacteriaceae и анаэробные микроорганизмы (группа Bacteroides fragilis и Clostridium spp.) [3, 5, 6].*

Ключевые слова: *стрептококк, Т-клетки, гемолитический стрептококк, геморрагический васкулит Шенлейна-Геноха, иммунная система.*

Certain bacterial toxins of Staphylococcus aureus and haemolytic streptococcus can act directly on T-cells and antigen-presenting cells of the immune system. The largest family of toxins of this type are called pyrogenic toxins superantigenic toxins (PTSAg). They include staphylococcal enterotoxins of serotypes A-E, G and H; staphylococcal TSST-1, pyrogenic

exotoxins of group A streptococci of serotypes A-C and F. The immunostimulatory potential of such toxins is a consequence of their ability to bind different regions of major histocompatibility complex type II proteins expressed on the surface of antigen-presenting cells and on T-lymphocytes, which leads to massive proliferation of more than 20% of peripheral T-cells, massive release of interleukins of types 1, 2, 6, gamma-interferon, tumour necrosis factors alpha, beta, etc. These cytokines together induce a massive proliferation of more than 20% of peripheral T-cells. These cytokines jointly cause hypotension, fever and diffuse erythematous rashes.

Erythrogenic toxin of Streptococcus pyogenes - SpeA (Dick's toxin), SpeC and SSA toxins are associated with the development of scarlatina, and exfoliative toxins of Staphylococcus aureus are the cause of skin detachment syndrome - Lyell's syndrome, toxic epidermal necrolysis, generalised exfoliative disease in infants - Ritter's disease, bullous impetigo and staphylococcal scarlatina-like lesions. Clinical manifestations of staphylococcal scarlatina-like lesions require obligatory differential diagnosis with scarlatina. In practice, differential diagnosis of these clinical forms can be difficult, which leads to difficulties in the choice of adequate antibiotic therapy due to the wide spread of S. aureus strains resistant to oxacillin/methicillin (MRSA), which, in addition to resistance to beta-lactam antibiotics, are often characterised by resistance to other classes of antibacterial drugs, in particular to aminoglycosides, macrolides, lincosamides, fluoroquinolones.

Infections caused by MRSA are accompanied by higher mortality and require greater material costs for treatment [1]. According to the results of earlier and modern studies, differential-diagnostic differences of clinical manifestations of staphylococcal infection with scarlatina-like syndrome and scarlatina have been established. Staphylococcal infection with scarlatina-like syndrome is more common in children aged over 7 years, patients have a primary purulent focus on the skin, mucous membranes or other organs, bacteriological examination of which documents the isolation of Staphylococcus aureus. Staphylococcus aureus and haemolytic streptococcus are the cause of the development of not only superficial and deep necrotic forms of infections, but also etiological factors in the launch of immunocomplex diseases, which include Schenlein-Genoch haemorrhagic vasculitis [10, 11, 12, 13]. Schenlein-Genoch haemorrhagic vasculitis as a symptom complex was described before 1800. Heberden. Schoenlein in the 1930s of the 19th century described a typical rash combined with articular manifestations, and Genoch in the 1970s of the 19th century noted the relationship of this disease to the gastrointestinal and renal manifestations.

Osler drew attention to the similarities between this vasculitis and hypersensitivity reactions [12, 13].

According to the recently approved classification of paediatric vasculitides by the European League Against Rheumatism, the European Society for Paediatric Rheumatology and the International Organisation for Research in Paediatric Rheumatology, Schoenlein-Genoch vasculitis belongs to the group of nongranulomatous vasculitides of predominantly small vessels [14]. It is a systemic vasculitis characterised by the deposition of large immune complexes containing abnormally glycosylated immunoglobulin A1 molecules, in the walls of arterioles, capillaries and venules, manifested by purpura tetrada, arthritis or arthralgia, abdominal pain and the development of glomerulonephritis [10]. The presence of purpura is a mandatory criterion for the diagnosis of Schoenlein-Genoch vasculitis; other signs and symptoms are present more variably.

The modern concept of sepsis, distorting the essence and specificity of the septic process, in particular, denying bacteraemia as the main pathogenetic mechanism of sepsis, brings to the fore such a non-specific test as an increase in the level of procalcitonin (PCT), which, according to our observations, is a criterion of the severity of the infectious process and is observed both in patients with sepsis and in severe course of other infections, being important in the study in dynamics to assess the effectiveness of antibacterial therapy, as it rapidly decreases already inferior to that of other infections. According to our study, the diagnostic value of this test is low.

This clinical case demonstrates the sequential development of multiple complications of an infected shin wound of mixed etiology (Staphylococcus aureus + Streptococcus pyogenes) - the emergence of purulent inflammation of the skin and a diffuse, widespread inflammatory process in the subcutaneous tissue of purulent nature - phlegmon of the shin, further - immunocomplex complication - Schenlein-Genoch haemorrhagic vasculitis, skin and joint form and scarlatina-like syndrome, which caused difficulties in differential diagnosis between scarlatina and staphylococcal infection with scarlatina-like syndrome.

Repeated traumatisation of the child's wound, etiology of the disease, inadequate local treatment led to rapid progression of the inflammatory process on the lower leg with the formation of an extensive lesion zone - the appearance of a painful infiltrate with marked hyperaemia, severe pain, febrile fever, intoxication and impaired function of the right leg. Softening of the painful inflammatory infiltrate, the appearance of fluctuation required radical surgical treatment of the wound - opening and drainage of the phlegmon. The pathogens of wound infection in the child - S. aureus and S. pyogenes, isolated from the wound in the IV degree of contamination, due to their pathogenicity factors as a result of epidermis integrity disruption contributed to the penetration of the inflammatory process into the deeper tissues, their additional damage, inhibition of repair and complications.

On the 7th day of the disease there was manifestation of immunocomplex complication - skin and joint form of Schenlein-Genoch haemorrhagic vasculitis and symptoms of staphylococcal infection with scarlatina-like syndrome, which required differential diagnosis with wound (extrabuccal) scarlatina.

REFERENCES

1. Kurbanova, N. V. (2024). Modern Presentation of Calcium-Containing Drugs in the Course of the Study of Dental Diseases. *International Journal of Alternative and Contemporary Therapy*, *2*(7), 12-14.
2. Kurbanova, N. V. (2024). CLINICAL EVALUATION OF A CRACKED AND FRACTURED TOOTH. *European Journal of Modern Medicine and Practice*, *4*(11), 544-548.
3. Kurbanova, N. V. (2024). Clinical and Morphological Featuresthe Occurrence of Tooth Decay. *International Journal of Alternative and Contemporary Therapy*, *2*(9), 128-132.
4. Ахмедова, М., Кузиева, М., & Курбанова, Н. (2025). ЗАБОЛЕВАНИЙ ВИСОЧНО-НИЖНЕЧЕЛЮСТНОГО СУСТАВА И ФОРМУЛИРОВАНИЕ ДИАГНОЗА. *Modern Science and Research*, *4*(1), 279-289.
5. Kurbanova, N. V. (2024, July). Modern Views on the use of Metal-Ceramic Structures in Dental Prosthetics. In *Interdisciplinary Conference of Young Scholars in Social Sciences (USA)* (Vol. 8, pp. 15-18). https://www. openconference. us/index. ph.
6. Kurbanova, N. V. (2024). Clinical and Morphological Featuresthe Occurrence of Tooth Decay. *International Journal of Alternative and Contemporary Therapy*, *2*(9), 128-132.
7. Saodat, A., Vohid, A., Ravshan, N., & Shamshod, A. (2020). MRI study in patients with idiopathic cokearthrosis of the hip joint. *International Journal of Psychosocial Rehabilitation*, *24*(2), 410-415.
8. Axmedov, S. J. (2023). EFFECTS OF THE DRUG MILDRONATE. *Innovative Development in Educational Activities*, *2*(20), 40-59.
9. Jamshidovich, A. S. (2023). ASCORBIC ACID: ITS ROLE IN IMMUNE SYSTEM, CHRONIC INFLAMMATION DISEASES AND ON THE ANTIOXIDANT EFFECTS. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, *3*(11), 57-60.
10. Jamshidovich, A. S. (2023). THE ROLE OF THIOTRIAZOLINE IN THE ORGANISM. *Ta'lim innovatsiyasi va integratsiyasi*, *9*(5), 152-155.
11. Jamshidovich, A. S. (2023). HEPTRAL IS USED IN LIVER DISEASES. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *35*(3), 76-78.

12. Jamshidovich, A. S. (2023). EFFECT OF TIVORTIN ON CARDIOMYOCYTE CELLS AND ITS ROLE IN MYOCARDIAL INFARCTION. *Gospodarka i Innowacje.*, *42*, 255-257.
13. Jamshidovich, A. S. (2024). NEUROPROTECTIVE EFFECT OF CITICOLINE. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, *4*(1), 1-4.
14. Jamshidovich, A. S. (2024). THE ROLE OF TRIMETAZIDINE IN ISCHEMIC CARDIOMYOPATHY. *Journal of new century innovations*, *44*(2), 3-8.
15. Jamshidovich, A. S. (2024). ВСЕ ЭФФЕКТЫ ПРЕПАРАТА ИМУДОН. *TADQIQOTLAR*, *31*(2), 39-43.
16. Jamshidovich, A. S. (2024). SPECIFIC FEATURES OF THE EFFECT OF THE HEPARIN DRUG. *TADQIQOTLAR*, *31*(2), 34-38.
17. Jamshidovich, A. S. (2024). USE OF GLUCOCORTICOSTEROIDS IN PEDIATRIC PRACTICE. *TADQIQOTLAR*, *31*(2), 29-33.
18. Jamshidovich, A. S. (2024). РОЛЬ ИНТЕЛЛАНОВОГО СИРОПА И ЦИАНОКОБАЛАМИНА В УЛУЧШЕНИИ ПАМЯТИ. *TADQIQOTLAR*, *31*(2), 44-48.
19. Jamshidovich, A. S. (2024). TREATMENT OF POLYNEUROPATHY WITH BERLITHION. *Ta'limning zamonaviy transformatsiyasi*, *4*(1), 201-209.
20. Jamshidovich, A. S. (2024). USE OF ASCORIL IN BRONCHIAL ASTHMA. *Ta'limning zamonaviy transformatsiyasi*, *4*(1), 191-200.
21. Jamshidovich, A. S. (2024). THE IMPORTANCE OF THE DRUG ARTOXAN. *Ta'limning zamonaviy transformatsiyasi*, *4*(1), 182-190.
22. Jamshidovich, A. S. (2024). THE ROLE OF RENGALIN IN CHRONIC BRONCHITIS. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(4), 116-123.
23. Jamshidovich, A. S. (2024). THE ROLE OF ALMAGEL DRUG IN GASTRIC AND DUODENAL WOUND DISEASE. *Ta'limning zamonaviy transformatsiyasi*, *4*(1), 173-181.
24. Jamshidovich, A. S. (2024). THE ROLE OF CODELAK BRONCHO SYRUP IN CHILDREN'S PRACTICE. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(4), 109-115.
25. Jamshidovich, A. S. (2024). THE AEVIT DRUG EFFECT. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(4), 124-132.
26. Jamshidovich, A. S. (2024). THE IMPORTANCE OF ALCHEBA DRUG IN POST-STROKE APHASIA. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(4), 132-138.

27. Jamshidovich, A. S. (2024). THE ROLE OF HYALURON CHONDRO DRUG IN OSTEOARTHROSIS. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(4), 139-145.
28. Jamshidovich, A. S. (2024). EFFECT OF SIMETHICONE DROP IN FLATULENCE. *Лучшие интеллектуальные исследования*, *14*(1), 95-101.
29. Jamshidovich, A. S. (2024). BENEFITS OF BETADINE SOLUTION. *Лучшие интеллектуальные исследования*, *14*(1), 116-122.
30. Jamshidovich, A. S. (2024). EFFECT INHALED GLUCOCORTICOIDS IN CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND BRONCHIAL ASTHMA. *TADQIQOTLAR*, *31*(1), 171-180.
31. Jamshidovich, A. S. (2024). USE OF VIGANTOL IN RICKETS. *Лучшие интеллектуальные исследования*, *14*(1), 102-108.
32. Jamshidovich, A. S. (2024). THE VITAPROST DRUG RESULTS. *Лучшие интеллектуальные исследования*, *14*(1), 109-115.
33. Jamshidovich, A. S. (2024). THE ROLE OF BISEPTOL DRUG IN URINARY TRACT DISEASE. *Лучшие интеллектуальные исследования*, *14*(1), 89-94.
34. Jamshidovich, A. S. (2024). PROPERTIES OF THE DRUG DORMIKIND. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(5), 88-92.
35. Jamshidovich, A. S., & Komilovich, E. B. (2024). IMMUNOMODULATORY FUNCTION OF DIBAZOL DRUG. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(5), 83-87.
36. Jamshidovich, A. S., & Komilovich, E. B. (2024). ADVANTAGES OF THE DRUG HEPTRAL. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(5), 98-101.
37. Эргашов, Б. К., & Ахмедов, Ш. Ж. (2024). ГИПЕРТОНИЧЕСКАЯ БОЛЕЗНЬ ЭТИОЛОГИЯ. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(6), 59-69.
38. Komilovich, E. B., & Jamshidovich, A. S. (2024). HYPERTENSION, CLASSIFICATION AND PATHOGENESIS. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(6), 50-58.
39. Komilovich, E. B., & Jamshidovich, A. S. (2024). YURAK ISHEMIYASI. STENOKARDIYADA SHOSHILINCH TIBBIY YORDAM. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(6), 12-20.

40. Komilovich, E. B., & Jamshidovich, A. S. (2024). HYPERTENSION ETIOLOGY. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(6), 32-41.
41. Komilovich, E. B., & Jamshidovich, A. S. (2024). CARDIAC ISCHEMIA. ANGINA NURSING DIAGNOSIS AND CARE. *Journal of new century innovations*, *46*(1), 44-52.
42. Jamshidovich, A. S. (2024). IMPORTANT INDICATIONS OF THE DRUG WOBENZYM. *Journal of new century innovations*, *46*(1), 29-32.
43. Jamshidovich, A. S. (2024). THE RESULTS OF THE EFFECT OF THE DRUG VALIDOL. *Journal of new century innovations*, *46*(1), 19-23.
44. Jamshidovich, A. S. (2024). VIFERON USE IN CHILDREN. *Journal of new century innovations*, *46*(1), 24-28.
45. Jamshidovich, A. S. (2024). USE OF DUSPATALIN (MEBEVERINE HYDROCHLORIDE) IN GASTROINTESTINAL DISEASES. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(5), 93-97.
46. Jamshidovich, A. S. (2024). ЭФФЕКТЫ СИРОПА ДЕПАКИНА (ВАЛЬПРОЕВАЯ КИСЛОТА). *Ta'lim innovatsiyasi va integratsiyasi*, *14*(2), 148-152.
47. Jamshidovich, A. S., & Komilovich, E. B. (2024). THE IMPORTANCE OF THE DRUG ALLOCHOL FOR CHRONIC CHOLECYSTITIS. *Ta'lim innovatsiyasi va integratsiyasi*, *14*(2), 133-137.
48. Jamshidovich, A. S., & Komilovich, E. B. (2024). ВАЖНЫЕ СВОЙСТВА ПРЕПАРАТА ДЕ-НОЛ (субцитрат висмута). *Ta'lim innovatsiyasi va integratsiyasi*, *14*(2), 143-147.
49. Jamshidovich, A. S., & Komilovich, E. B. (2024). SPECIAL FEATURES OF BUDECTON DRUG. *Ta'lim innovatsiyasi va integratsiyasi*, *14*(2), 138-142.
50. Jamshidovich, A. S. (2024). ЭФФЕКТИВНОЕ ВОЗДЕЙСТВИЕ ПРЕПАРАТА КЕЙВЕР. *Ta'lim innovatsiyasi va integratsiyasi*, *15*(3), 137-143.
51. Jamshidovich, A. S. (2024). USEFUL PROPERTIES OF THE DRUG YODOFOL. *Ta'lim innovatsiyasi va integratsiyasi*, *15*(3), 144-149.
52. Jamshidovich, A. S. (2024). FITOTERAPIYANING AKUSHER-GINEKOLOGIYADA AHAMIYATI. *Лучшие интеллектуальные исследования*, *15*(2), 121-125.
53. Jamshidovich, A. S. (2024). THE IMPORTANCE OF THE DRUG DOPROKIN. *Лучшие интеллектуальные исследования*, *15*(2), 109-114.
54. Jamshidovich, A. S. (2024). THE EFFECT OF DOSTINEX ON THE BODY. *Лучшие интеллектуальные исследования*, *15*(2), 115-120.

55. Jamshidovich, A. S. (2024). РЕЗУЛЬТАТЫ ЭФФЕКТИВНОГО ДЕЙСТВИЯ ПРЕПАРАТА КАНЕФРОН. *Лучшие интеллектуальные исследования*, *15*(2), 138-143.
56. Jamshidovich, A. S. (2024). СОВРЕМЕННЫЕ ЭФФЕКТЫ ПРЕПАРАТА ИНДОЛ. *Лучшие интеллектуальные исследования*, *15*(2), 126-131.
57. Jamshidovich, A. S. (2024). EFFECT OF ISMIZHEN DRUG ON BODY IMMUNITY. *Лучшие интеллектуальные исследования*, *15*(2), 132-137.
58. Jamshidovich, A. S. (2024). POSITIVE EFFECTS OF THE DRUG CARCIL. *Ta'lim innovatsiyasi va integratsiyasi*, *15*(3), 127-131.
59. Jamshidovich, A. S. (2024). РЕЗУЛЬТАТЫ ЭФФЕКТИВНОГО ДЕЙСТВИЯ КАВИНТОНА. *Ta'lim innovatsiyasi va integratsiyasi*, *15*(3), 132-136.
60. Jamshidovich, A. S. (2024). Современный Эффект Спрея Кометазон. *Research Journal of Trauma and Disability Studies*, *3*(3), 62-65.
61. Jamshidovich, A. S. (2024). THE ROLE OF" SIMONTE PLUS" DRUG IN THE MODERN TREATMENT OF BRONCHIAL ASTHMA. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, *4*(5), 66-70.
62. Jamshidovich, A. S. (2024). FEATURES OF THE BIOMECHANISM OF THE DRUG LEVOMYCETIN (CHLORAMPHENICOL). *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, *4*(9), 298-301.
63. Jamshidovich, A. S. (2024). THE MOST IMPORTANT INDICATORS OF OMEGA 3 SUBSTANCE IN THE METABOLISM OF THE HUMAN BODY. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, *4*(10), 113-117.
64. Komilovich, E. B., & Khalimovich, M. N. (2024). CARDIAC ISCHEMIA. ANGINA CLINICAL FORMS AND DIAGNOSIS. *Journal of new century innovations*, *46*(1), 70-78.
65. Komilovich, E. B. (2024). CORONARY HEART DISEASE. ANGINA EMERGENCY CARE. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(7), 235-242.
66. Komilovich, E. B. (2024). YURAK ISHEMIK KASALLIGI. STENOKARDIYANI DAVOLASHNING ZAMONAVIY TAMOYILLARI. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(6), 3-11.
67. Jamshidovich, A. S. (2024). THE MOST IMPORTANT BENEFITS OF GINGER FOR THE HUMAN BODY'S IMMUNITY. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, *4*(11), 269-273.
68. Axmedov, S. (2024). THE SPECIFIC EFFECT OF THE DRUG" BAKLASAN" IN CEREBROVASCULAR DISEASES AND ITS PRACTICAL SIGNIFICANCE TODAY. *Modern Science and Research*, *3*(12), 485-492.

69. Komilovich, E. B. Z. (2023). Coronary Artery Disease. *EUROPEAN JOURNAL OF MODERN MEDICINE AND PRACTICE*, *3*(12), 81-87.
70. Komilovich, E. B. (2024). CORONARY HEART DISEASE. ANGINA TREATMENT. *Journal of new century innovations*, *46*(1), 95-104.
71. Komilovich, E. B. (2024). HYPERTENSION TREATMENT. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(7), 227-234.
72. Эргашов, Б. К. (2024). ИШЕМИЧЕСКАЯ БОЛЕЗНЬ СЕРДЦА. СТЕНОКАРДИЯ ПРОФИЛАКТИКА. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(6), 21-31.
73. Axmedov, S. (2025). ВАЖНЫЕ СВОЙСТВА ПРЕПАРАТА ЭСКУЗАН ПРИ СОСУДИСТЫХ ЗАБОЛЕВАНИЯХ. *Modern Science and Research*, *4*(1), 380-387.
74. Axmedov, S. (2025). SPECIFIC PROPERTIES OF ROXERA DRUG IN CARDIOVASCULAR DISEASES. *Modern Science and Research*, *4*(2), 472-479.
75. Эргашов, Б. К. (2024). ГИПЕРТОНИЧЕСКАЯ БОЛЕЗНЬ ДИАГНОСТИКА. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(6), 70-78.
76. Komilovich, E. B. (2024). HYPERTENSION DIAGNOSTICS. *ОБРАЗОВАНИЕ НАУКА И ИННОВАЦИОННЫЕ ИДЕИ В МИРЕ*, *38*(6), 42-49.
77. Axmedov, S. (2025). THE DRUG PHYSIOTENS, THE FEATURES OF THE DRUG AND ITS USE IN THE FIELD OF CARDIOLOGY, IN PATIENTS WITH HEAVY BODY WEIGHT. *Modern Science and Research*, *4*(3), 350-358.
78. Ravshanovna, X. L. (2021, June). MINIMALLY INVASIVE METHODS OF TREATMENT OF DENTAL CARIES IN ADULTS. In *" ONLINE-CONFERENCES" PLATFORM* (pp. 118-119).
79. Khalilova, L. (2025). MAIN ASPECTS IN CARIES DIAGNOSIS. *Modern Science and Research*, *4*(1), 707-715.
80. Khalilova, Laziza. "GLASS IONOMER CEMENTS USED IN DENTISTRY." *Modern Science and Research* 3.12 (2024): 443-450.
81. Халилова, Л., Ахмедова, М., & Кузиева, М. (2025). ОСНОВНЫЕ АСПЕКТЫ ПРИ ДИАГНОСТИКИ КАРИЕСА. *Modern Science and Research*, *4*(1), 697-706.
82. Кузиева, Мадина, Малика Ахмедова, and Лазиза Халилова. "СОВРЕМЕННЫЕ АСПЕКТЫ ВЫБОРА МАТЕРИАЛА ДЛЯ ОРТОПЕДИЧЕСКОГО ЛЕЧЕНИЯ БОЛЬНЫХ, НУЖДАЮЩИХСЯ В ПРОТЕЗИРОВАНИИ ЗУБОВ." *Modern Science and Research* 4.1 (2025): 322-333.

83. Ахмедова, М., Кузиева, М., & Халилова, Л. (2025). СОСТОЯНИЕ АЛЬВЕОЛЯРНОГО ОТРОСТКА И ПЕРИОСТА ПРИ ИСПОЛЬЗОВАНИИ СЪЕМНЫХ ПРОТЕЗОВ. *Modern Science and Research*, *4*(1), 301-310.
84. Кузиева, М., Ахмедова, М., & Халилова, Л. (2025). ГАЛЬВАНОЗ И МЕТОДЫ ЕГО ДИАГНОСТИКИ В КЛИНИКЕ ОРТОПЕДИЧЕСКОЙ СТОМАТОЛОГИИ. *Modern Science and Research*, *4*(2), 203-212.