



New Day in Medicine
Новый День в Медицине

NDM



TIBBIYOTDA YANGI KUN

Ilmiy referativ, marifiy-ma'naviy jurnal



AVICENNA-MED.UZ



ISSN 2181-712X.
EISSN 2181-2187

12 (86) 2025

Сопредседатели редакционной коллегии:

**Ш. Ж. ТЕШАЕВ,
А. Ш. РЕВИШВИЛИ**

Ред. коллегия:

М.И. АБДУЛЛАЕВ
А.А. АБДУМАЖИДОВ
Р.Б. АБДУЛЛАЕВ
Л.М. АБДУЛЛАЕВА
А.Ш. АБДУМАЖИДОВ
М.А. АБДУЛЛАЕВА
Х.А. АБДУМАДЖИДОВ
Б.З. АБДУСАМАТОВ
У.О. АБИДОВ
М.М. АКБАРОВ
Х.А. АКИЛОВ
М.М. АЛИЕВ
С.Ж. АМИНОВ
Ш.Э. АМОНОВ
Ш.М. АХМЕДОВ
Ю.М. АХМЕДОВ
С.М. АХМЕДОВА
Т.А. АСКАРОВ
М.А. АРТИКОВА
Ж.Б. БЕКНАЗАРОВ (главный редактор)
Е.А. БЕРДИЕВ
Б.Т. БУЗРУКОВ
Р.К. ДАДАБАЕВА
М.Н. ДАМИНОВА
К.А. ДЕХКОНОВ
Э.С. ДЖУМАБАЕВ
А.А. ДЖАЛИЛОВ
Н.Н. ЗОЛотова
А.Ш. ИНОЯТОВ
С. ИНДАМИНОВ
А.И. ИСКАНДАРОВ
А.С. ИЛЪЯСОВ
Э.Э. КОБИЛОВ
А.М. МАННАНОВ
Д.М. МУСАЕВА
Т.С. МУСАЕВ
М.Р. МИРЗОЕВА
Ф.Г. НАЗИРОВ
Н.А. НУРАЛИЕВА
Ф.С. ОРИПОВ
Б.Т. РАХИМОВ
Х.А. РАСУЛОВ
Ш.И. РУЗИЕВ
С.А. РУЗИБОВЕВ
С.А. ГАФФОРОВ
С.Т. ШАТМАНОВ (Кыргызстан)
Ж.Б. САТТАРОВ
Б.Б. САФОВЕВ (отв. редактор)
И.А. САТИВАЛДИЕВА
Ш.Т. САЛИМОВ
Д.И. ТУКСАНОВА
М.М. ТАДЖИЕВ
А.Ж. ХАМРАЕВ
Б.Б. ХАСАНОВ
Д.А. ХАСАНОВА
Б.З. ХАМДАМОВ
Э.Б. ХАККУЛОВ
Г.С. ХОДЖИЕВА
А.М. ШАМСИЕВ
А.К. ШАДМАНОВ
Н.Ж. ЭРМАТОВ
Б.Б. ЕРГАШЕВ
Н.Ш. ЕРГАШЕВ
И.Р. ЮЛДАШЕВ
Д.Х. ЮЛДАШЕВА
А.С. ЮСУПОВ
Ш.Ш. ЯРИКУЛОВ
М.Ш. ХАКИМОВ
Д.О. ИВАНОВ (Россия)
К.А. ЕГЕЗАРЯН (Россия)
DONG JINCHENG (Китай)
КУЗАКОВ В.Е. (Россия)
Я. МЕЙЕРНИК (Словакия)
В.А. МИТИШ (Россия)
В.И. ПРИМАКОВ (Беларусь)
О.В. ПЕШИКОВ (Россия)
А.А. ПОТАПОВ (Россия)
А.А. ТЕПЛОВ (Россия)
Т.Ш. ШАРМАНОВ (Казахстан)
А.А. ЩЕГОЛОВ (Россия)
С.Н. ГУСЕЙНОВА (Азербайджан)
Prof. Dr. KURBANHAN MUSLUMOV (Azerbaijan)
Prof. Dr. DENIZ UYAK (Germany)

ТИББИЁТДА ЯНГИ КУН НОВЫЙ ДЕНЬ В МЕДИЦИНЕ NEW DAY IN MEDICINE

*Илмий-рефератив, маънавий-маърифий журнал
Научно-реферативный,
духовно-просветительский журнал*

УЧРЕДИТЕЛИ:

**БУХАРСКИЙ ГОСУДАРСТВЕННЫЙ
МЕДИЦИНСКИЙ ИНСТИТУТ
ООО «ТИББИЁТДА ЯНГИ КУН»**

Национальный медицинский
исследовательский центр хирургии имени
А.В. Вишневского является генеральным
научно-практическим
консультантом редакции

Журнал был включен в список журнальных
изданий, рецензируемых Высшей
Аттестационной Комиссией
Республики Узбекистан
(Протокол № 201/03 от 30.12.2013 г.)

РЕДАКЦИОННЫЙ СОВЕТ:

М.М. АБДУРАХМАНОВ (Бухара)
Г.Ж. ЖАРЫЛКАСЫНОВА (Бухара)
А.Ш. ИНОЯТОВ (Ташкент)
Г.А. ИХТИЁРОВА (Бухара)
Ш.И. КАРИМОВ (Ташкент)
У.К. КАЮМОВ (Тошкент)
Ш.И. НАВРУЗОВА (Бухара)
А.А. НОСИРОВ (Ташкент)
А.Р. ОБЛОКУЛОВ (Бухара)
Б.Т. ОДИЛОВА (Ташкент)
Ш.Т. УРАКОВ (Бухара)

12 (86)

www.bsmi.uz
https://newdaymedicine.com E:
ndmuz@mail.ru
Тел: +99890 8061882

2025
декабрь

Received: 20.11.2025, Accepted: 06.12.2025, Published: 10.12.2025

UDC 616.716.4-001.5-002.3:612.017:615.37

FEATURES OF THE IMMUNE STATE AND PROSPECTS FOR IMMUNOCORRECTION IN THE DEVELOPMENT OF POST-TRAUMATIC INFLAMMATORY COMPLICATIONS IN PATIENTS WITH JAW FRACTURES

Farmanov Feruz G'iyoz ugli <https://orcid.org/0009-0002-0296-6071> e-mail: feruz.farmonov@bsmi.uz

Bukhara State Medical Institute named after Abu Ali ibn Sina, Uzbekistan, Bukhara, st. A. Navoi.
1 Tel: +998 (65) 223-00-50 e-mail: info@bsmi.uz

✓ Resume

Authors conduct research on studying of influence local immunocorrection therapies on some indicators of the immune status at patients with jaw fractures (JF). At jaw fractures (JF) frequency of postoperative complications, despite application of modern measures of prevention, does not decrease, making 5,5-14,1 % from all complications at the diseases. It is shown that the traumatic osteomyelitis of the mandible develops at low immunocorrection reactance of an organism. Actual there is a problem of develop new effective influence on infectious process, in particular methods of stimulation of local and general immunity.

Keywords: Crises of The Bottom Jaw, A Traumatic Osteomyelitis, Therapy, Immunomodulators.

ОСОБЕННОСТИ ИММУННОГО СОСТОЯНИЯ И ПЕРСПЕКТИВЫ ИММУНОКОРРЕКЦИИ ПРИ РАЗВИТИИ ПОСТТРАВМАТИЧЕСКИХ ВОСПАЛИТЕЛЬНЫХ ОСЛОЖНЕНИЙ У ПАЦИЕНТОВ С ПЕРЕЛОМАМИ ЧЕЛЮСТИ

Фарманов Феруз Гиезович <https://orcid.org/0009-0002-0296-6071> e-mail: feruz.farmonov@bsmi.uz

Бухарский государственный медицинский институт имени Абу Али ибн Сины, Узбекистан,
г. Бухара, ул. А. Навои. 1 Тел: +998 (65) 223-00-50 e-mail: info@bsmi.uz

✓ Резюме

Авторы проводят исследование по изучению влияния местной иммунокорректирующей терапии на некоторые показатели иммунного статуса у пациентов с переломами челюсти (ПЧ). При переломах челюсти (ПЧ) частота послеоперационных осложнений, несмотря на применение современных мер профилактики, не снижается, составляя 5,5-14,1 % от всех осложнений при заболеваниях. Показано, что травматический остеомиелит нижней челюсти развивается при низкой иммунокоррекционной реактивности организма. Актуальной остается проблема разработки новых эффективных средств воздействия на инфекционный процесс, в частности методов стимуляции местного и общего иммунитета.

Ключевые слова: Переломы нижней челюсти, травматический остеомиелит, терапия, иммуномодуляторы.

ЖАҒ СИНҒАН БЕМОРЛАРДА ШИКАСТЛАНИШДАН КЕЙИНГИ ЯЛЛИҒЛАНИШ АСОРАТЛАРИНИ РИВОЖЛАНИШИДА ИММУНИТЕТ ҲОЛАТИНИНГ ХУСУСИЯТЛАРИ ВА ИММУНОКОРРЕКЦИЯ ИСТИҚБОЛЛАРИ

Фарманов Феруз Гиёз ўғли <https://orcid.org/0009-0002-0296-6071> e-mail: feruz.farmonov@bsmi.uz

Абу али ибн Сино номидаги Бухоро давлат тиббиёт институти Ўзбекистон, Бухоро ш.,
А.Навоий кўчаси. 1 Тел: +998 (65) 223-00-50 e-mail: info@bsmi.uz

✓ **Резюме**

Муаллифлар маҳаллий иммунокорректив терапиянинг жағ синган беморларда иммунитет ҳолатининг айрим кўрсаткичларига таъсирини ўрганиш бўйича тадқиқот ўтказмоқдалар. Жағнинг синиши бўлса, операциядан кейинги асоратларнинг частотаси, замонавий профилактика чораларини қўллашга қарамай, камаймайди, бу касалликлардаги барча асоратларнинг 5,5-14,1% ни ташкил қилади. Пастки жағнинг травматик остеомиелитининг тананинг паст иммунокорректив реактивлиги билан ривожланиши кўрсатилган. Юқумли жараёнга таъсир қилишининг янги самарали воситаларини, хусусан, маҳаллий ва умумий иммунитетни рағбатлантириши усуллари ишлаб чиқиши муаммоси долзарб бўлиб қолмоқда.

Калит сўзлар: мандибуланинг синиши, травматик остеомиелит, даволаш, иммуномодуляторлар.

Relevance

With fractures of the lower jaw (VLF), the frequency of postoperative complications, despite the use of modern preventive measures, does not decrease, accounting for 5.5-14.1% of all complications in this disease [3,4,5]. It has been shown that traumatic osteomyelitis of the lower jaw develops with low immunological reactivity of the body. The task of developing new effective ways of influencing the infectious process, in particular, methods of stimulating local and general immunity, remains urgent. Jaw fractures often cause inflammatory complications (osteomyelitis, arthritis) associated with infection and impaired immunity, requiring complex correction: antibiotics, anti-inflammatory drugs, as well as immunomodulatory agents (interferons, immunoglobulins, probiotics) to restore cellular and humoral immunity, reduce inflammation and prevent pathological fusion, improving long-term treatment results. Features of the immune state: Decreased local immunity: Injury and the presence of infection (odontogenic, traumatic) weaken the local protective barriers of the mucous membrane and bone tissue. Inflammatory response: Injury triggers a systemic inflammatory response, but if prolonged, it can become dysfunctional, depleting the immune system. The risk of bacterial colonization: Open fractures, proximity to teeth and saliva create favorable conditions for the growth of pathogenic microflora (streptococci, staphylococci, anaerobes). A violation of the balance of pro-inflammatory and anti-inflammatory cytokines, which contributes to the chronicity of inflammation and impaired regeneration. Targeted use of broad-spectrum antibiotics, taking into account the microflora. Anti-inflammatory therapy: NSAIDs (nonsteroidal anti-inflammatory drugs) for the relief of acute inflammation. Immunomodulators: Interferons: To enhance antiviral and antibacterial protection. Immunoglobulins: For passive immunization in severe infections. To restore the microflora, which indirectly affects the immune response, especially with prolonged use of antibiotics. To increase the overall resistance of the body (for example, vitamins C, E, ginseng-based preparations). Reconstructive plastic surgery with implantation: The use of bioactive coatings and materials to accelerate osteogenesis and reduce the risk of infection. The purpose of immunocorrection is to normalize the immune response, reduce the risk of osteomyelitis, false joint and other complications, accelerate fusion and improve functional outcomes [1,2,3,5].

The study was performed on the basis of the Department of Oral and Maxillofacial Surgery of the Bukhara Regional Multidisciplinary Medical Center.

The purpose of the topic: The study of the effect of local immunocorrective therapy is not some indicators of the immune status in patients with fractures of the lower jaw (FLJ).

Materials and methods of investigation

Inpatient treatment was 93 patients with FLJ (from 17 to 62 years old), 57 patients with a diagnosis of unilateral fracture, 36 patients with bilateral fracture (FLJ). Patients were divided into 2 groups: group 1 - 42 people who underwent traditional therapy, group 2 – 51 patients who were additionally given the immunocorrective drug Imudon. Non-specific resistance indices (complement components C3 and ceruloplasmin) were evaluated by the immunochemical method, the level of circulating immune complexes (CIC), average molecular peptides (PSD) in the blood, complement C3, the phagocytic activity of neutrophils, and the concentration of ceruloplasmin.

Results and analysis

Combined treatment with the use of the immunocorrecting drug Imudon allowed to reduce the concentration of SMP (from 0.58 ± 0.06 conventional units to 0.28 ± 0.02 conventional units, $p < 0.05$), the level of CEC (from $78,1 \pm 5.12$ conventional units to 34.8 ± 3.12 conventional units, $p < 0.05$), ceruloplasmin concentration (from 39.6 ± 0.52 mg / dl to 25.2 ± 0.22 mg / dl). The level of complement C3 after treatment significantly increased compared to the initial one (from 68.8 ± 2.15 mg / dl - 101.6 ± 5.62 mg / dl, $p < 0.05$).

For 5 years, 93 patients with VLF between the ages of 17 and 62, 67 men and 26 women, were hospitalized. Persons of a young age prevailed, only 8 men were over the age of 50. 57 patients had unilateral VLF, 36 - bilateral.

The control group consisted of 31 practically healthy people. Among the observed patients, 68.3% of patients were admitted to the hospital on the first day of the disease, up to three days - 24.5%, the rest - later than 3 days. Due to the late immobilization of fragments of the lower jaw, a purulent-inflammatory process developed in the fracture gap. The source of purulent infection was a tooth with necrotic pulp or a pathological process in the periapical tissues. In cases of rapid elimination of the focus of infection, adequate antimicrobial therapy and reliable fixation of fragments, the inflammatory process stopped. With a delay in tooth extraction and the absence of reliable immobilization of bone fragments, the transition of acute traumatic osteomyelitis into a purulent-destructive process was noted.

Traditionally, orthopedic immobilization was carried out using various modifications, individually curved wire or standard tape tires with hook loops. Drug therapy included antibacterial (ceftriaxone, sulfa drugs), desensitizing, painkillers. All patients were divided into 2 groups: group 1 - 42 patients who underwent traditional therapy, group 2 - 51 patients who were additionally given the immunocorrective drug Imudon (before surgery). Non-specific resistance indices (complement components C3 and ceruloplasmin) were evaluated by the immunochemical method, the level of circulating immune complexes (CIC), and average molecular peptides (SPM) in the blood according to the method of A. Gabrielyan. (1981), phagocytic activity of neutrophils (FAN). The results are presented in table 1.

Table 1

Dynamics of non-specific resistance indices in patients with vlp

Index	The control 1	1 group		2 group	
		Originally	14 days	Originally	14 day
SMP (conventional unit)	$0,28 \pm 0,06$	$0,58 \pm 0,06^*$	$0,58 \pm 0,06^*$	$0,58 \pm 0,06^*$	$0,28 \pm 0,02^{**}$
CEC (conventional units)	$39,2 \pm 2,4$	$78,1 \pm 5,11^*$	$78,1 \pm 5,12^*$	$78,1 \pm 5,12^*$	$34,8 \pm 3,12^{**}$
Complement C3 (mg / dl)	$124,7 \pm 8,9$	$68,9 \pm 2,13^*$	$68,8 \pm 2,15^*$	$68,8 \pm 2,15^*$	$101,9 \pm 5,64^*$
Ceruloplasmin (mg / dl)	$24,6 \pm 0,41$	$39,6 \pm 0,51^*$	$39,6 \pm 0,52^*$	$39,6 \pm 0,52^*$	$25,2 \pm 0,22$
FAN (%)	$27,7 \pm 0,61$	$38,4 \pm 1,38^*$	$38,6 \pm 1,37^*$	$38,6 \pm 1,37^*$	$28,8 \pm 0,52$

* - significance of differences compared with control, $p < 0.05$

** - significance of differences compared with the initial value in the same group, $p < 0.05$

Initially, all the studied parameters in both groups significantly differed from the control. High values of the level of SMP in patients with VLF indicated an unfavorable clinical course of the inflammatory process, since they have toxicity and thereby reduce local resistance.

The phagocytic activity of neutrophils (FAN) in the observed patients was statistically significantly (1.4 times) higher than in healthy individuals and practically did not change in dynamics in the 1st group.

The level of CEC was initially more than 2 times higher, under their influence, the release of lysosomal enzymes from neutrophils occurs, cells - carriers of mediators are activated, inducing an acute inflammatory process.

There was a decrease in the level of complement C3 in patients with VLP by almost 2 times compared with the control, which, apparently, was due to "increased consumption" of the CEC against the background of a purulent-inflammatory process. Low values of complement C3, which is responsible for immune adhesion of the CEC and chemotaxis, contribute to the exocytosis of neutrophil granules and the secretion of lysosomal hydrolases.

Alteration of tissues with cell breakdown during inflammation leads to an increase in ceruloplasmin, which enhances the activation of the lysosomal neutrophil complex.

After a course of therapy for 14 days, the level of all the studied parameters in the 1st group did not change compared to the initial one and significantly exceeded the similar indicators in the control group.

In group 2, complex treatment with the use of the immunocorrecting drug Imudon significantly and significantly reduced the concentration of SMP (2 times), the level of the CEC - 2.3 times. After the therapy, these indicators approached the values in the control group. The level of complement C3 increased after treatment, however, it remained below the control values (101.6 ± 5.62 mg / dl, in the control 124.7 ± 8.9 mg / dl, $p < 0.05$).

The concentration of ceruloplasmin after treatment decreased by 64%. Both indicators - ceruloplasmin and FAN - after treatment in the 2nd group did not differ from the control.

A study of the clinical course of the post-traumatic period has shown that additional leukinterferon therapy performed in the group with a conditionally unfavorable prognosis has high clinical efficacy. When LF is included in the treatment regimen, patients' condition stabilizes faster, and there is a faster regression of systemic and local manifestations of the inflammatory post-traumatic reaction. Normalization of temperature occurred on 2.36 ± 0.47 days after immunoactive treatment of patients versus 5.61 ± 0.32 after traditional treatment ($p < 0.001$), and normalization of temperature during immunocorrection in patients with an unfavorable prognosis occurred significantly faster than in the group of patients with a conditionally favorable prognosis who received traditional therapy (3.69 ± 0.26 ; $p < 0.05$). The dynamics of a decrease in the level of intoxication and the disappearance of its clinical manifestations (lethargy, adynamia, etc.) in the immunoactive treatment group was clearly observed. Monitoring of general clinical blood parameters allowed us to establish an earlier normalization of the main parameters of group 11b homeostasis. In this group of patients, normalization of the level of leukocytosis and the Kalf-Kalifa leukocyte intoxication index (LII), which characterizes the level of endogenous intoxication, occurred relatively faster. Thus, in the group of patients receiving immunoactive therapy with LF, on the 10th day of treatment, the LII normalizes, which does not significantly differ from the same value in the first group of patients (1.11 ± 0.22 and 1.03 ± 0.16 , respectively), whereas in the group of patients receiving traditional therapy, LII remains elevated (1.91 ± 0.19).

Conclusion

The data obtained indicate the possibility of using the drug Imudon, which enhances immune defense factors, in the treatment of these patients.

LIST OF REFERENCES:

1. Agarkov N.M., Gontarev S.N., Zelensky V.A., Domenyuk D.A., Makkonen K.F., Afanasova E.P., Ivanov A.V., Subbotina T.I. Mathematical prediction of the development of phlegmon in acute odontogenic osteomyelitis of the jaw in terms of blood and systemic immunity / Medical Bulletin of the North Caucasus, 2018;1:62-65.
2. Belovolova R.A., Novosyadlaya N.V., Novgorodsky S.V. Features of the immune status and the possibility of immunocorrection in post-traumatic inflammatory complications in patients with open fractures of the lower jaw // Immunology. 2002;5:287-293.
3. Robustova T.G. New trends during odontogenic osteomyelitis of the jaw / Russian Dental Journal, 2006;5:32-34.
4. Nikitin A. A., Lapshin V. P., Kosyakov M. N., Stuchilov V. A., Malychenko N. V. Modern methods of diagnosis and treatment of odontogenic mediastinitis / Russian otorhinolaryngology, 2004;5:15-18.
5. Olawale O. Adamson, Olalekan M. Gbotolorun, Olalekan Odeniyi, Oyinlola O. Oduyebo, Wasiu L. Adeyemo. Assessment of predictors of treatment outcome among patients with bacterial odontogenic infection / Saudi Dent J. 2018 Oct; 30(4):337-341.

Entered 20.11.2025