The Pharma Innovation Journal 2020; 9(6): 592-594

www.ThePharmaJournal.com

The Pharma Innovation

ISSN (E): 2277- 7695
ISSN (P): 2349-8242
NAAS Rating: 5.03
TPI 2020; 9(6): 592-594

www.thepharmajournal.com
Received: 12-04-2020
Accepted: 15-05-2020

Rakhimov Zokir Kayumovich
Candidate of Medical Sciences,
Bukhara State Medical Institute,
Uzbekistan

Corresponding Author:
Rakhimov Zokir Kayumovich
Candidate of Medical Sciences,
Bukhara State Medical Institute,
Uzbekistan

Immuno correction of post-traumatic inflammatory complications in patients with fractures of the lower jaw

Rakhimov Zokir Kayumovich

Abstract
Purulent-inflammatory complications of fractures of the lower jaw are among the most common pathologies of surgical dentistry and are distinguished by such clinical features as an inclination to chronicity, development of the spastic process, and the formation of purulent formations. Numerous studies conducted over the past decades have clearly shown that the clinical course of inflammatory disease and the state of reparative processes are significantly influenced by such mechanisms of regulation of immune reactions as the function of immune-competent cells, the production of certain cytokines, the level of production of pathogenic immune complexes and adhesive molecules. The author conducted a study to study the effect of local immuno corrective therapy on some indicators of the immune status in patients with fractures of the lower jaw (FLJ). In case of fractures of the lower jaw (FLJ), the frequency of postoperative complications, despite the use of modern preventive measures, does not decrease, amounting to 5.5-14.1% of all complications in this disease. 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 to influence the infectious process, in particular, methods of stimulating local and general immunity, remains urgent.

Keywords: mandible fractures, traumatic osteomyelitis, investigation, stimulation of local and general immunity, therapy, Imudon.

Introduction
In recent years, there has been an increase in public injuries, including fractures of the bones of the facial skeleton, 75-87% of fractures of the lower jaw. Fractures of the lower jaw in 10-37% of cases are complicated by inflammatory phenomena, the cause of which are odontogenic foci located in the plane of the fracture, as well as other endoepidemic endogenous factors. One of the pathogenic mechanisms of the development of purulent-inflammatory complications is a violation of the body's immune status. Recent studies have shown that trophic disturbances in the area of bone damage play an important role in the pathogenesis of purulent-inflammatory complications of mandibular fractures.
Moreover, some researchers note a direct relationship between the severity of endogenous intoxication, lipid peroxidation, and the number of circulating immune complexes formed during the death of cells and microorganisms. Treatment of patients with fractures of the lower jaw remains one of the urgent problems of modern dentistry. In different age groups, the course and treatment of fractures of the lower jaw has its own peculiarities, therefore, improving the quality of treatment for victims largely depends on a differentiated approach to each specific case of injury, taking into account certain patterns characteristic of each patient. [7]. In case of fractures of the lower jaw, the frequency of postoperative complications, despite the use of modern preventive measures, does not decrease, amounting to 5.5-14.1% of all complications in this disease [5]. It has been shown that traumatic osteomyelitis of the lower jaw develops with low immunological reactivity of the body [1, 2, 5, 6, 9, 10]. Despite the successes achieved in the treatment of periodontal diseases, the improvement of these issues is still of great relevance and practical dependence [3], since the effectiveness of the treatment of this pathology still does not satisfy practitioners [4, 8]. The task of developing new effective ways to influence the infectious process, in particular, methods of stimulating local and general immunity, remains urgent.

Purpose of the study
Study of the effect of local immuno corrective therapy on some indicators of the immune status in patients with fractures of the lower jaw.

Materials and research methods

The study was conducted on the basis of the Department of Oral and Maxillofacial Surgery of the Bukhara Regional Multidisciplinary Medical Center. Inpatient treatment was 93 patients with a fracture of the lower jaw (from 17 to 62 years old), 57 patients with a diagnosis of a unilateral fracture, 36 - a bilateral fracture of the lower jaw. The age of the subjects ranged from 17 to 62 years. Most of them were represented by men - 61 people (65%), women - 32 (35.0%). Patients were divided into 2 groups: group 1 - 42 people who underwent traditional therapy, group 2 –51 patients who were additionally given the immuno corrective drug Imudon.

Non-specific resistance indices (complement components C3 and ceruloplasmin) were evaluated by the immunochemical method, the level of circulating immune complexes, medium molecular weight peptides in the blood, complement C3, phagocytic activity of neutrophils, and ceruloplasmin concentration.

Results and their surveys

Complex treatment with the use of the local immuno correcting drug Imudon reduced the concentration of medium molecular peptides (from 0.58±0.06 conventional units to 0.28±0.02 conventional units, $p<0.05$), the level of circulating immune complexes (from 78.1±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 fractures of the lower jaw aged 17 to 62 years, 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 a unilateral lower jaw fracture, 36 had a bilateral fracture. 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 was 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 immuno corrective 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, and medium molecular peptides in the blood according to the method of A. Gabrielyan. (1981), phagocytic activity of neutrophils.

The results are presented in table 1.

Table 1: Dynamics of non-specific resistance indices in patients with mandibular pearl

Index	Control	1 group		2 group	
		initial	14 days	initial	14 days
medium molecular peptides (conventional unit)	0,28±0,06	0,58±0,06*	0,58±0,06*	0,58±0,06*	0,28±0,02**
circulating immune complexes (conventional unit)	39,2±2,4	78,1±5,11*	78,1±5,12*	78,1±5,12*	34,8±3,12**
Complement C3 (mg / dl)	124,7±8,9	68,9±2,13*	68,8±2,15*	68,8±2,15*	101,9±5,64*
Ceruloplasmin (mg / dl)	24,6±0,41	39,6±0,51*	39,6±0,52*	39,6±0,52*	25,2±0,22
phagocytic activity of neutrophils (%)	27,7±0,61	38,4±1,38*	38,6±1,37*	38,6±1,37*	28,8±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$450 mn m,./3239tyui/

Initially, all the studied parameters in both groups significantly differed from the control. High values of the level of medium molecular peptides in patients with fractures of the lower jaw indicated an unfavorable clinical course of the inflammatory process, since they have toxicity and thereby reduce local resistance. The phagocytic activity of neutrophils 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 circulating immune complexes was initially more than 2 times higher, under their influence, the release of lysosomal enzymes from neutrophils occurs, mediator carrier cells are activated, inducing an acute inflammatory process.

A decrease in the level of complement C3 was observed in patients with fractures of the lower jaw by almost 2 times compared with the control, which, apparently, was due to their "increased consumption" of circulating immune complexes against a purulent-inflammatory process. Low values of complement C3, which is responsible for the immune adhesion of circulating immune complexes and chemotaxis, contribute to exocytosis of neutrophil granules and 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 immuno correcting drug Imudon significantly and significantly reduced the concentration of medium molecular peptides (2 times), the level of circulating immune complexes - by 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 phagocytic activity of neutrophils - after treatment in the 2nd group did not differ from the control.

Conclusion

Thus, the data obtained indicate the possibility of immuno correction of post-traumatic inflammatory complications in patients with fractures of the lower jaw using Imudon, which enhances immune defense factors, in the treatment of patients.

References

1. Agarkov NM, Gontarev SN, Zelensky VA, Domenyuk DA, Makkonen KF, Afanasova EP, Ivanov AV, Subbotina TI. 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 RA, Novosyadlaya NV, Novgorodsky SV. Features of the immune status and the possibility of immuno correction in post-traumatic inflammatory complications in patients with open fractures of the lower jaw // Immunology. 2002; 5:S287-293.
3. Ivanushko TP, Gankovskaya LV, Shamanaev SV, Svich OA, Kartashov DD, Grechenko VV, Balykin RA. Study of the content of defensins in patients with purulent - inflammatory diseases of the maxillofacial region//Dentistry. 2014; 93(2):S23-26.
4. Matrosov VI. EHF-therapy in the complex treatment of acute purulent-inflammatory diseases of the maxillofacial region//dissertation for the degree of candidate of medical sciences/Vladivostok State Medical University. Vladivostok, 2002.
5. Nikitin AA, Lapshin VP, Kosyakov MN, Stuchilov VA, Malychenko NV. Modern methods of diagnosis and treatment of odontogenic mediastinitis/Russian otorhinolaryngology. 2004; 5:S15-18.
6. Robustova TG. New trends during odontogenic osteomyelitis of the jaw / Russian Dental Journal. 2006; 5:32-34.
7. Rakhimov ZK “Purulent - inflammatory complications of lower jaw fractures” monograph, 2019
8. Salieva Z. The use of the drug "traumeel-s" in the complex treatment of patients with purulent-inflammatory diseases of the maxillofacial region//In the collection: The quality of medical dental care: methods of achievement, criteria and evaluation methods collection of articles of international scientific practical conference. 2016; S:165-170.
9. 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; 30(4):337-341.
10. Rishi Kumar Bali, Parveen Sharma, Shivani Gaba, Avneet Kaur, Priya Ghanghas. A review of complications of odontogenic infections/Natl J Maxillofac Surg. 2015; 6(2):136-143.