AJPMHS GLOBAL RESEARCH NETWORK

AMERICAN Journal of Pediatric Medicine and Health Sciences
Volume 2, Issue 11, 2024 ISSN (E): 2993-2149

Comparative Evaluation of Complex Treatment of Peri-Implantitis According to Cytological Studies

Shodiev Sadulla Samekhjanovich
Assistant teacher of the department of Maxillofacial Surgery, Samarkand State Medical University, Samarkand, Uzbekistan

Abstract: The study involved 66 patients who underwent dental implantation. In the main group, local ozone therapy was included in the complex treatment. A cytological study of neutrophilic leukocytes and epithelial cells in saliva was performed. It was noted that in the main group after ozone therapy, the content of neutrophilic leukocytes and epithelial cells in saliva sharply decreased, approaching normal levels.

Keywords: perimplantitis, saliva cytology, neutrophilic leukocytes, epithelial cells.

Despite the successes of dental implantology, there is still a fairly large percentage of postoperative complications (from 10% to 18%) associated with trauma, wound damage and aseptic inflammation (peri-implantitis), leading to implant rejection, and therefore their prevention is an important medical issue. -social task.

A priority and promising area of restorative medicine is the development of new technologies that increase the functional reserves of a healthy and sick person, which is important for the rehabilitation of patients during surgical interventions (Panin A.M., Ivanov S.Yu., 2002; Ushakov R.V., Tsarev V.N. , 2003; Yurchenko M.Yu., 2003).

For this purpose, in recent years, non-pharmacological methods have been widely used, aimed at enhancing regeneration and reparative processes that contribute to the strengthening of implants, especially in the early postoperative period (Korchazhkina I.B., 2002; Orekhova L.Yu., 1997).

Ozone therapy has an anti-inflammatory and anti-edematous effect, normalizes microcirculation in tissues subjected to surgery, reduces the permeability of the vascular wall, stimulates metabolic processes and immune functions of the body, increases the oxygen content in the blood and tissues, accelerates wound healing, has a neurotropic and analgesic effect, and also stimulates repair processes and metabolism in bone tissue.

In connection with the above, it seems relevant to study the possibility of accelerating regenerative processes and preventing inflammatory complications during intraosseous dental implantation using ozone therapy in combination with the immunomodulator cycloferon, which contributes to faster and more effective relief of the pathological process in the surgical area, as well as speeding up the time for orthopedic prosthetics after installation of a titanium implant.

Materials and methods. All patients, in accordance with the objectives of the study, were randomized into 2 groups: main and control. The main group included 33 patients who, in the early postoperative period, included local ozone therapy in the traditional treatment and prophylactic complex from the 2nd day after surgery. The control group included 33 patients who, from the 2nd day after dental implantation surgery, were treated with a traditional treatment

and prophylactic complex, which included hygienic treatment of the postoperative area with antiseptic solutions (chlorhexidine, hydrogen peroxide, furatsilin), analgesics and antibiotics according to indications.

The course of the early postoperative period was assessed in all patients starting from the second day after surgery, then on days 6-7, 9-10 and 12 after surgery. It should be noted that ozone therapy was well tolerated by all patients; in not a single case, not a single patient had a deterioration in the clinical condition either during the procedure or in subsequent periods of application of the procedure. After just 2-3 days of ozone therapy, most patients experienced decreased pain in the surgical area, and postoperative discomfort in the oral cavity was also significantly reduced. And after 5-6 days, patients in the main group compared to the control group showed a more pronounced relief of the main manifestations of both local inflammation and its signs at the level of the whole organism.

The manifestation of pain in the main group during this period was noted only in 30% of patients versus 62% in the comparison group, swelling and hyperemia of the mucous membrane were detected in 23% and 21%, respectively versus 51 and 46% in the comparison group, fibrinous plaque on the suture lines in 25% of cases (in the comparison group - 42%), local temperature - in 12% of cases (in the comparison group - 32%), subfebrile body temperature - in 3% of cases (in the comparison group - 8%), enlarged lymph nodes - in 3% (in the comparison group - in 15%).

To objectify the signs of the inflammatory process, we studied the results of a cytological study of saliva, as the simplest and most informative method for assessing inflammation used in practical dentistry.

Thus, a comparative quantitative assessment of the content of neutrophilic leukocytes and epithelial cells in saliva compared to the norm revealed a significant increase in the number of epithelial cells in saliva in the examined patients with peri-implantitis of classes 1 and 2. *Their content in saliva, expressed in quantitative ratio when counted in Goryaev's chamber, was significantly increased compared with similar indicators of healthy individuals and amounted to 4.25 ± 0.3 versus 1.7 ± 0.1, respectively, which was a difference of 2. 5 times.*

A qualitative assessment of the state of epithelial cells showed that they were predominantly in a mature form (stage 6 of maturation) - in 85% of cases, and only in 15% of cases stage 5 of maturation was determined, which indicated the presence of reactive inflammation without intensification of proliferation processes (Paraskevich JI.A ., 2002; Robustova T.G., 1999; Askary EX., 1998; Misch S.E., 1993. Quantitative analysis of the content of leukocytes in saliva showed that on the 2nd day after surgery there was pronounced leukocytosis compared to the norm. Thus, the content of leukocytes in saliva (mg/l) exceeded the normal values 3 times - 2.9±0.2 with the norm being 0.9±0.1 ($p<0.01$).

It was found that after the 5th day of ozone therapy, the cytological picture of saliva, as assessed by epithelial cells, was restored to the level of healthy individuals, while in the control group these indicators approached normal values only after a month. After the 7th day of ozone therapy, the main signs of inflammation were absent in almost all patients. And only 10% of patients in the main group experienced slight pain in the surgical area, while in the control group there were still various manifestations of local inflammation in 25-40% of cases. Quantitative analysis of the leukocyte content in saliva showed that after surgery there was pronounced leukocytosis compared to the norm.

Thus, the number of leukocytes in 1 ml of gingival fluid (in 1 square of Goryaev's chamber) on the 2nd day after dental implantation exceeded the normal values by more than 3 times - 2.9 ± 0.3 with a norm of 0.9 ± 0, 1 ($p <0.01$), which, like the number of epithelial cells in saliva, indicates the presence of an inflammatory process in tissues subjected to surgery, with insufficiently pronounced proliferation processes.

Table 1. Dynamics of the number of leukocytes in 1 ml of saliva (in 1 square of Goryaev's chamber) in patients in the early postoperative period after dental implantation (M±t).

Study period	Study Groups	
	Comparable	Main
Norm	0,9±0,1	
Before treatment (2nd day after surgery)...	2,9±0,3 p**	
After the 5th procedure (7th day after surgery)	2,5±0,3	1,1±0,1
After the rehabilitation course (12th day after surgery)	1,7±0,2 p*	1,0±0,09 p*
1 month after surgery	1,1±0,1 p*	1,0±0,1 p*

Note: P - significance of differences compared to the norm: * - < 0.05; ** - < 0.01.

As evidenced by the data in Table 2, after five ozone therapy procedures, there was a sharp decrease in the number of leukocytes in patients in the early postoperative period to similar values in healthy individuals, while in the comparison group, normalization of these values was observed only after a month.

Early relief of the inflammatory process in the main group in the postoperative period indicates the absence of complications. In addition, the results obtained indicate the need for earlier inclusion (starting from the 2nd day after the operation) of a combined treatment method using ozone therapy and cycloferon in the rehabilitation complex for rapid relief of the inflammatory process. When carrying out rehabilitation measures after dental implantation, much attention was paid to the correction of local resistance of the oral cavity, impaired as a result of surgery due to tissue trauma and the formation of pain. As a result of decreased immunity, conditions are created for the development of postoperative inflammatory complications, and reserve mechanisms of osteoregeneration are also reduced. In many surgical interventions in dentistry (and in surgery in general), great importance is attached to immune protection, since short-term tissue trauma results in a number of significant changes in the parameters of the immune system.

Table 2. Time frame for relief of the inflammatory process in patients of the main and control groups in days

Groups	Number of patients	Average recovery time in days
Main	33	5-6
Test	33	7-8

As follows from the data presented in Table 2, the average time for stopping the pathological process with peri-implantitis was 5-6 days. With the traditional method of treatment, the same form of periodontal inflammatory process was stopped only after 7-8 days. The first signs of effectiveness in the combined method of therapy using ozone therapy appeared within 2-3 days after the start of treatment. Our studies revealed an improvement in a number of indicators of local reactivity of the body in patients with various forms of peri-implantitis with combined treatment. Thus, indicators of the absolute content of neutrophils in 1 ml. of mixed saliva in patients with various forms of peri-implantitis during combined treatment were higher than in patients of the comparison group. At the same time, there was a pronounced tendency to normalize the level of neutrophils. The table shows the average absolute neutrophil content in patients with various forms of peri-implantitis over time during combined treatment.

Table 3. Dynamics of the absolute content of neutrophils in 1 ml of unstimulated saliva of patients during combined treatment mg/l

Groups of patients	Absolute content of neutrophils in 1 ml of saliva (mg/l)					
	1 day	P	4-5 day	P	8-10 day	P
Norm	0.09±0.01	<0.05	0.17±0.03	<0.05	0.11±0.02	<0.05
Main group	0.29±0.03	<0.05	0.21±0.02	<0.05	0.16±0.03	<0.05
Comparison group	0.29±0.03					

With traditional treatment, similar neutrophil indices in patients of the compared group also tended to normalize, but in a less pronounced form. As can be seen from Table 4, a more pronounced difference in the normalization of neutrophil parameters was noted in the main group of patients. These data were confirmed by the results of histological examination of peri-implant fluid and saliva. Thus, with a comparative quantitative assessment of the content of the studied elements in saliva and peri-implant fluid in comparison with the norm, a significant increase in the number of epithelial cells in the oral fluid in patients with peri-implantitis was revealed. At the same time, in patients with class 1 peri-implantitis, compared with healthy people, the content of epithelial cells in saliva was 3 times higher - 5.1 ± 0.9 and 1.7 ± 0.1 ($p < 0.001$) and peri-implant fluid - 4.8 ± 0.5 in comparison with gingival fluid -1.6±0.3 ($p<0.001$).

In patients with class 2 peri-implantitis, although the number of epithelial cells in these media exceeded the content in healthy individuals - in saliva - 4.9 ± 0.3 and 1.7 ± 0.1 ($p < 0.001$), in peri-implant fluid - 4.1 ±0.2 compared with gingival - 1.6±0.3 ($p<0.001$), however, the differences in this case were less significant (Tables 13, 14) than in mild cases of the disease (class 1), which indicates about the formation of a protective reaction of the body in response to the process of inflammation

In addition, compared with healthy people, patients with peri-implantitis showed differences in the stages of maturation of epithelial cells. Normally, in 97% of healthy individuals, cytological examination reveals practically mature epithelial cells and only in 3% of cases immature forms are detected. In patients with peri-implantitis, an increase in immature cell forms was noted.

Table 4. Dynamics of the number of epithelial cells in saliva mg/l by peri-implantitis classes (M±w)

Groups studied, study period	Comparable		Main	
	1st class	2st class	1st class	2st class
Normal (gingival fluid)	1,7±0,1			
Treatment (initial)	5,1±0,9 PI**	4,9±0,3 P1**	5,1±0,9 PI**	4,9±0,3 p1**
After 5-6 procedures	3,6±0,4 p2*'	3,4±0,2 P1**,P2*	1,8±0,2 P2***	2,0±0,4 P2**
After treatment	2,4±0,4 P1* P2**	2,5±0,3 P1* P2**	1,8±0,4 P2**	1,9±0,4 P2**
In 1 month	1,9±0,4 P2**	1,9±0,3 P2**	I,7±0,3 P2**	1,7±0,4 P2**

*Note: P1 - significance of differences compared to the norm; P2 - reliability of differences before and after treatment; P< - *-0.05;**- 0.01;*

Table 5. Dynamics of the number of leukocytes in saliva in mg/l (M±t)

Groups studied, study period	Comparable		Main	
	1st class	2st class	1st class	2st class
Norm	0,9±0,1			
Before treatment (baseline)	3,1±0,4 pj**	3.2±0,5	3,1±0,4	3,2±0,5

After 5-6 procedures	2,4±0,4 P1*,P2*	2,8±0,2 y±o$_s$2 PI * P9* ' ь		1,2±0,2 P2**
After treatment	1,8±0,3 P1*,P2**	1,9±0,2 P1*,P2**	1,0±0,1 P2***	1,0±0,1 P2***
In 1 month	1,1±0,2 P9***	1,2±0,2 P2***	0,9±0,1 P2***	

Note: P1 - reliability of differences compared to the norm; P2 - significance of differences before and after treatment; P<-*- 0.05; ** - 0.01; *** - 0.001.

Under the influence of the course of treatment in patients with class 1 peri-implantitis, both in the main and in the comparison groups, both quantitative and qualitative signs of epithelial cells and leukocytes in saliva and peri-implant fluid to the level of healthy individuals. In patients with class 2 peri-implantitis, the course of ozone therapy caused, as in class 1 patients, the restoration of the cytological picture in the saliva and peri-implant fluid to physiological norm values.

In the compared group in this category of patients, although there was a significant decrease in the number of epithelial cells and leukocytes in the studied biological media (p <0.05), however, their indicators were 2 times higher than in the main group and significantly higher than in healthy persons. Even more pronounced differences in patients of the main and comparison groups were revealed in the differentiation of epithelial cells. In patients of the compared group, an increase in mature forms of epithelial cells was noted by only 17%.

Thus, the results obtained indicate that ozone therapy in combination with the immunomodulator cycloferon has a pronounced anti-inflammatory effect, тhe developed method of ozone therapy is a pathogenetically substantiated and highly effective treatment method for the prevention of peri-implantitis of classes 1 and 2, which distinguishes it favorably from the methods of basic therapy carried out for peri-implantitis and indicates the feasibility of its use in dental implantology.

Literature:

1. Мусурманов Ф.И. Случай перфорации дна гайморовой пазухи с двух сторон в области 26 и 15 зубов /Ф.И. Мусурманов., С.С. Шодиев // Вестник науки и образования.2020.-№20 (98).Част 1.С.66-69.
2. Элназаров А.Т. Экспериментальное применение ксенотрансплантата при операции синуслифтинг/ А.Т. Элназаров., С.С. Шадиев// Достижения науки и образования, №12(53) 2019. Россия. Стр.114-118.
3. Shodiev S.S. Method of plasty of the lateral wall of themaxillary sins in sinus lifting/ Shodiev S.S., K.D. Olimjonovna //Science and innovation international scientific journal V.1. (D3).2022.-P. 189-192 SCINCE AND INNOVATION
4. Ismatov F.A. Analysis of the study of dental and general health of university students in Samarkand/ Ismatov F.A. Shodiev S.S., Musurmanov F.I. // Journal of Biomedicine and Practice.2020. – №. 6. – P. 34-39.
5. Shodiyev S.S. Comparative evaluation of the use of various materials after tooth extraction in the preimplantation period /S.S. Shodiyev, B. Kodirova // International Bulletin of Medical Sciences and Clinical Research №3. (2)-P. 23-27.
6. Шодиев С.С. Эффективность применения отвара аниса при лечении периимплантитов/ С.С. Шодиев, Ф.А. Исматов, Д.Б. Нарзиева, Н.О. Тухтамишев, Б.С. Ахмедов. Достижения науки и образования, №11(52).-2019. -С.-99-103.
7. Шадиев С.С. Совершенствование процесса подготовки преподавателей технических дисциплин с учётом требований современной системы образования /СС Шадиев //Молодой ученый. 2015.-С.-1075-1078.

8. Мусурманов Ф.И. Микробиологическая оценка эффективности фитотерапии при флегмонах челюстно-лицевой области/ Ф.И. Мусурманов, С.С. Шодиев// Проблемы биологии и медицины 2 (94).- 2020.-С.143
9. Шадиев С.С. Микробиологическая оценка эффективности фитотерапии при флегмонах челюстно-лицевой области у детей. С.С. Шадиев, Ф.И. Мусурманов. Журнал проблемы биологии и медицины.-2017.-С.-139-141
10. Shadiev S.S. Relationship of the parameters of endogenous intoxication with fatty acids in patients with phlegmons of the maxillofacial region/ SS Shadiev, MI Azimov// Украинский журнал хирургии.-2013-С.-102-105
11. Хамитова Ф. Совершенствование методов лечения одонтогенных кист челюстей/ Ф Хамитова, Ф.И. Мусурманов, С.С. Шадиев// Журнал проблемы биологии и медицины.-2017.-С.-132-134
12. Shadiev S.S. Endogenous intoxication level, contain fatty acids and their relationship in children with chronic osteomyelitis of the jaws/ S.S. Shadiev, D.U. Fozilova// Int. J. Med. Health Res 2 (12).- 2016.-P.-9-12
13. Мусурманов Ф.И. Способ лечения хронических синуситов с ороантральным сообщением путем свободной пересадки костного трансплантата/ Ф Мусурманов, С.С. Шадиев, Д.Д. Ибрагимов// Журнал вестник врача 1 (3).-2014.-С.-157-157.
14. Shadiev S. S. EXPERIMENTAL USE OF XENOTRANSPLANT IN SINUS LIFT OPERATION/Shadiev Sadulla Samekhjanovich//EURASIAN JOURNAL OF ACADEMIC RESEARCH Volume 4, Issue 9, September 2024. Page 189-196
15. Гаффаров У.Б. Влияние препарата «холисал гель» на послеоперационное течение у пациентов после удаления ретинированных третьих моляров/ У.Б. Гаффаров, С.С. Шодиев, Ф.А. Исматов// СОВРЕМЕННЫЕ ДОСТИЖЕНИЯ СТОМАТОЛОГИИ: сборник, 2018-ББК 56.6 С.- 56 .
16. Олимжонова Ф.О. Прогностическое значение спектра цитокинов слюны и их изменения при острых и хронических рецидивирующих стоматитах у детей./ Ф.О. Олимжонова Г.У. Самиева, С.С. Шадиев. КОНЦЕПЦИИ ФУНДАМЕНТАЛЬНЫХ И ПРИКЛАДНЫХ НАУЧНЫХ ИССЛЕДОВАНИЙ: Агентство международных исследований. Международная научно практическая конференция. Уфа 09.12.2017г. часть 6.стр 83-85
17. С.С. Шадиев Фитотерапия при флегмонах челюстно-лицевой области у детей/ С.С. Шадиев, У.Б. Гаффаров// Сборник всероссийской научнопрактической конференции с международным участием, «Комплексный подход к лечению патологии зубо-челюстной системы». М/-2018.С.123
18. Шадиев С.С. Изучение жирнокислотного состава крови при остеомиелитах челюстей у детей на фоне озонотерапии/ С.С. Шадиев, Д.У. Фозилова// Стоматология 1 (3 (68)).-2017.-С.61-64
19. Азимов М.И. Оценка эффективности озонотерапии у больных с флегмонами челюстно-лицевой области по маркерам эндогенной интоксикации/ М.И. Азимов С.С. Шадиев// Stomatologiya 1 (2 (67)).- 2017.-С. 85-87.
20. Shadiev S.S. The effectiveness of ozone therapy in treatment of acute osteomyelitis of jaws in children/ S.S. Shadiev. F.D. Ulugbekovna// European science review.2017.- P.-148-150
21. Хамидова Г. Фитотерапия при лечении гингивитов/ Г Хамидова, С. Шадиев, А. Облокулов// Журнал проблемы биологии и медицины.-2016.-С. 107-110
22. Шадиев С.С. Некоторые аспекты лечения флегмон чло у детей/ С.С. Шадиев, С.Ш. Саидмурадова// Актуальные вопросы гигиенической науки: -2024.-С.414.

23. Шадиев С.С. Комплексное лечение периимплантитов с применением настойки аниса/ С.С. Шадиев, С.У. Назарова// Стоматология-наука и практика, перспективы развития.-2021.-С.238-240

24. Шадиев С.С. Микробиологический мониторинг гнойной раны при флегмонах челюстно-лицевой области у детей при различных методах диагностики/ С.С Шадиев, Х,Т. Худойбердиев// Журнал проблемы биологии и медицины.-2016.- С.119-122

25. Шадиев С.С. Определение показателей микробной флоры у детей с флегмонами челюстно-лицевой области методом газожидкостной хроматографии/ С.С. Шадиев, М.И. Азимов// Stomatologiya 1 (4 (65)).-2016.-С.70-73

26. Шадиев С.С. Гигиенический мониторинг лечения хронического генерализованного пародонтита с применением продукта природного происхождения/ С.С. Шадиев, Д.Т. Дусмурадова, Н.А. Хожиева// СТОМАТОЛОГИЯ: НАУКА И ПРАКТИКА, ПЕРСПЕКТИВЫ РАЗВИТИЯ -2015.-С.120-123

27. Шадиев С.С. Эффективность применением продукта природного происхождения при лечении хронического генерализованного пародонтита/ С.С. Шадиев, Д.Т. Дусмурадова, Н.А. Хожиева// СТОМАТОЛОГИЯ: НАУКА И ПРАКТИКА, ПЕРСПЕКТИВЫ РАЗВИТИЯ.-2015.-С.123-127

28. Шадиев С.С. Частота встречаемости альвеолитов по данным областной стоматологической поликлиники города Самарканда/ С.С. Шадиев, А.Б. Шаркиев, Р.А. Шамсиев, Ж.Э. Махмудов. Молодежь и медицинская наука в XXI веке, 2014.-С.490-490

29. Шадиев С.С. Взаимосвязь показателей эндогенной интоксикации с содержанием жирных кислот у детей с флегмонами челюстнолицевой области/ С.С. Шадиев, М.И. Азимов// Український журнал хірургії, 2013.-С.102-105

30. Шадиев С.С. Актуальные вопросы гигиенической науки: исторические аспекты и современные тенденции/ С.С. ШАДИЕВ, С.Ш. САИДМУРАДОВА. Приволжский исследовательский медицинский университет КОНФЕРЕНЦИЯ

31. Шадиев С.С. Болалар юз-жағ соҳаси флегмоналарини даволашда арпабодиён эфир мойини маҳаллий қўллаш/ С.С. Шадиев, У.Б.// Гаффаров. МЕЖДИСЦИПЛИНАРНЫЙ ПОДХОД ПО ЗАБОЛЕВАНИЯМ ОРГАНОВ ГОЛОВЫ И ШЕИ, С. 213.

32. Шадиев С.С. Сравнительная оценка комплексного лечения острого одонтогенного остеомиелита челюстей у детей/ С.С. Шадиев //Journal of science-innovative research in uzbekistan 2 (5).2024.-С.720-731.

33. Шадиев С.С. Газохроматографический анализ микробного пейзажа при комплексном лечении флегмон челюстно-лицевой области у детей/ С.С. Шадиев // Eurasian journal of medical and natural sciences 4 (Issue 5, Part 2).2024.-С.83-89.

34. Шадиев С.С. Применение фитотерапии при комплексном лечении флегмон челюстно-лицевой области у детей/ С.С.Шадиев //Евразийский журнал академических исследований 4 (5 Part 3).2024.-С. 7-13.

35. Шадиев С.С. Bolalarda og’iz bo’shlig’idagi o’sma va o'smasimon xosilalar strukturasi va lokalizatsiyasi/ Шадиев С.С.// JOURNAL OF BIOMEDICINE AND PRACTICE 9 (1).2024.-С. 307-314.

36. Шадиев С.С. ПРОБЛЕМЫ ДИАГНОСТИКИ, ПРОФИЛАКТИКИ И ЛЕЧЕНИЯ ОДОНТОГЕННЫХ ОСТЕОМИЕЛИТОВ ЧЕЛЮСТЕЙ (литературный обзор)/Шадиев Саъдулла Самехжанович //EURASIAN JOURNAL OF MEDICAL AND NATURAL SCIENCES Volume 4 Issue 9, September 2024. -С. 140-150