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"THE MODULATION OF ORAL DISEASE DEVELOPMENT BY FACTORS OF THE LOCAL IMMUNE SYSTEM IN INDIVIDUALS PRESENTING WITH CHRONIC RENAL INSUFFICIENCY."

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Abstract:

In many cases, systemic diseases show their first signs in the oral cavity. Currently, dental diseases are most closely studied in patients with chronic renal failure at different stages.

Keywords: *chronic renal failure, periodontitis, lactoferrin, chronic kidney disease*

Clinical and experimental studies have shown that lactoferrin is involved in the pathogenesis of oral diseases.

Dental diseases, in particular inflammatory periodontal diseases, are more severe in the presence of other diseases [1]. Changes in the oral cavity are often caused by diseases of the genitourinary system. Researchers have found a way to diagnose severe periodontitis at an early stage. In chronic renal failure (CRF), inflammatory processes in periodontal tissues do not cause hyperglycemia [2]. At the same time, there are few studies on oral health in patients with chronic renal failure [3; 4; 5], and a wide range of diseases of the oral mucosa are reported, which are likely associated with problems of local immunity [6; 3].

Table 1
Analysis of complaints and examination results of patients with CKD

Complaints and objective changes in the oral cavity in patients with CKD.	Frequency of occurrence
Complaints and objective changes in the oral cavity in patients with CKD.	Frequency of occurrence
bleeding gums, large amounts of soft plaque	80,6%
feeling of dryness in the mouth	48,3%
difficulty eating, burning mucous membranes	3,2%
feeling of halitosis	87%
exposure of the necks of the teeth ½,	63%
above, subgingival calculus	92%
swelling of the papillary and marginal gums, pastiness, hyperemia	78%
Difficulty in wound healing	

Table
Analysis of complaints and objective indicators of examination of patients with chronic renal failure

Complaints and objective changes in the oral cavity in patients with chronic renal failure.	Frequency of occurrence
bleeding gums, large amounts of soft plaque	97%
feeling of dryness in the mouth	89%
difficulty eating, burning mucous membranes	62,5%
feeling of halitosis	96%
Exposure of the necks of the teeth by ½-⅔	85%
above, subgingival calculus	95%
swelling of the papillary and marginal gums, whitishness	87,5%
Difficult wound healing	100%

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In patients with chronic renal failure, the development of immune disorders and infectious complications greatly influences the short-term and long-term prognosis of patients. Therefore, predicting their occurrence is of great importance [1; 7]. Researchers have noted various changes in the immune status of the oral cavity in chronic renal failure. These changes are associated with the activation of innate immune effectors, an increase in the activity of absorption and oxygen-dependent metabolism, a decrease in the number of activated lymphocytes, NK cells, T lymphocytes and their subpopulations in the peripheral blood, an increase in the content of immunoglobulins types A, M and G, a decrease in the activity of lysozyme in mixed saliva is shown in works [7,8].

Since lactoferrin is one of the main components of local immunity, affecting the complement system and phagocytic activity of neutrophils, its biological and diagnostic functions, as well as its content, have been studied in detail [9; 10]. Lactoferrin is found in synovial membranes, cerebrospinal fluid, sweat and other biological fluids [11-16]. Oral lactoferrin has not been recognized as playing an important role in local immunity in chronic renal failure.

The aim of this study was to determine whether lactoferrin contributes to the development of oral diseases in patients with chronic renal failure.

MATERIALS AND METHODS. In the nephrology department of the clinic of Samarkand State Medical University, 40 patients with chronic renal failure (CKD), 40 patients with chronic kidney disease (CKD) without signs of CKD and 10 patients without renal pathology (control group) were examined. Nephrologists diagnosed chronic kidney disease according to standard clinical examination criteria. The dental examination included collecting complaints, conducting objective tests and measuring lactoferrin in saliva. Saliva was collected under fasting conditions using standard methods.

The concentration of lactoferrin was determined by solid-phase heterogeneous ELISA using a set of reagents "Lactoferrin - ELISA - BEST". The concentration of albumin and urea was also determined by a unified colorimetric method using the Albumin-Novo and Urea-Novo reagent kits.

RESEARCH RESULTS. When examining patients with chronic renal failure, the following symptoms were revealed (Table 1): bleeding gums, dry mouth, difficulty eating, hot mucous membranes, bad breath, S-shaped peeling of the tooth neck, a large amount of soft plaque, over- and subgingival calculus, adhesion and swelling of the papillary and marginal gingiva, hyperglycemia.

When examining a patient with chronic renal failure, complaints were revealed of pain in the oral cavity, impaired taste, dry mouth and difficulties with feeding due to missing teeth (Table 2). Even with minor mechanical trauma to the oral cavity, all patients in this group had problems with wound healing. An objective examination revealed swelling, pustules, papillary and marginal gums, exposed cervix with S-T! in 85%, a large amount of soft plaque above and below the gum, and calculus deposits in 95%. In 87.5%, the gums were whitish and dry.

The amount of oral fluid, immunity and microflora indicate that the oral ecosystem changes under the influence of each of the noted symptoms.

In all three groups of patients, there were no significant differences in the concentration of lactoferrin in the oral fluid (5100 ± 14.4 mg/l versus 4828.6 ± 186.9 mg/l in the control group, 4371.7 ± 244.4 at p> 0.05).

However, it should be taken into account that the concentration of the substance in the studied biological substrates depends on the rate of salivation, which averaged 5 ml in the control group, 3 ml in the CKD group and 1 ml in the CKD group. Albumin content was recalculated to determine lactoferrin concentration.

Table 3
Immunological parameters of oral fluid in patients with chronic renal failure and CKD

Options	Control group	CKD	CKD
Lactoferrin mg/l	4828.6 ± 186.9	5100 ± 14.4	4371,7±244,4
Albumin g/l	0.6 ± 0.3	1.8 ±0.7	0,44±0,12
Lactoferrin/albumin mg/l	25289.8 ±5260.8	8343.4 ±2573.1	22676±4021,1

At the same time, the concentration of lactoferrin was 25289.8 ± 5260.8 mg/g albumin (control), 8343.4 ± 2573.1 mg/g albumin in the CRF group and 22676 ± 4021.1 mg/g albumin in the CRF group, which is significant at p<0.05.

CONCLUSIONS. 1. Clinical manifestations of oral ecology differ significantly between patients with chronic kidney disease and patients with chronic renal failure. In patients with chronic kidney disease, signs associated with impaired oral ecology predominate, and in patients with chronic renal failure, signs associated

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with impaired regeneration of soft tissues of the oral cavity predominate.

2. In chronic renal failure, the lactoferrin index changes, which indicates a decrease in local immunity in the oral cavity and progressive destruction of periodontal tissue. These changes indicate the need for preventive and therapeutic measures in the oral cavity before deciding on the treatment of the underlying disease.

BIBLIOGRAPHY :

1. Eburne P., Chapple I., Sharma P. Epidemiology and biological mechanisms linking periodontitis with chronic kidney disease (Current Oral Health Reports, 2025). Обзор эпидемиологии и механизмов взаимосвязи между пародонтитом и CKD.
2. Bunte K., Brunet-Llobet L., Rocha-Eiroa M.D. et al. Patient-related factors that link chronic kidney disease and periodontitis: a scoping review (Odontology, 2025). Обзор факторов хозяина, связывающих CKD и пародонтит, включая иммунные и воспалительные параметры.
3. Yasuno T., Tada K., Takahashi K. et al. Dysbiosis of oral bacteria in patients with chronic kidney disease (Renal Replacement Therapy, 2024). Исследование изменений оральной микрофлоры у пациентов с CKD, что связано с повышенным воспалением и риском стоматологических заболеваний.
4. Systematic review and meta-analysis of chronic oral inflammatory diseases and CKD (J Clin Med / MDPI, 2025). Систематический анализ связи между хроническими воспалительными заболеваниями полости рта (включая пародонтит) и CKD.
5. García-Rios P. et al. Oral findings linked to chronic kidney disease (J Clin Med, 2025). Обзор стоматологических проявлений CKD, включая гипосаливацию, изменения микробиоты и пародонтальные проявления.
6. Sabirov B.K., Khabibova N.N. The relationship between chronic renal failure and inflammatory diseases of the oral mucosa: new therapeutic strategies (Web of Medicine: Journal of Medicine, Practice and Nursing, 2025). Обзор механизмов воспалительных заболеваний слизистой в условиях ХПН.
7. Sabirov B.K. Specific aspects of dental management in patients with chronic kidney disease: inflammatory conditions of the oral mucosa (International Journal of Medical Sciences and Clinical Research, 2025). Описание клинических особенностей и подходов к управлению воспалительными поражениями ротовой полости при CKD.
8. Azizbek Gofurov. Pathophysiological mechanisms of the influence of renal failure on inflammatory processes in periodontal tissues (International Journal of Medical Sciences, 2025). Обзор патофизиологических механизмов влияния почечной недостаточности на воспаление пародонта.
9. Schütz J.D.S. et al. «Association between severe periodontitis and chronic kidney disease severity in predialytic patients» (Oral Diseases, 2020). Демонстрирует связь тяжести пародонтита с прогрессированием CKD.
10. Valenzuela-Narváez R.V. et al. Periodontal disease as a predictor of chronic kidney disease (J Int Med Res, 2021). Показано, что пародонтальные поражения коррелируют с ухудшением функции почек.
11. Alimjanovoch R. J., Akmalovna K. F., Isamiddinovich K. A. Relationship between Chronic Kidney Disease and Oral Health //American Journal of Medicine and Medical Sciences. – 2022. – Т. 12. – №. 5. – С. 455-462.
12. Сафаров М. Т. И др. The use of platelet autoplasma in the complex treatment of periodontal diseases //узбекский медицинский журнал. – 2021. – Т. 2. – №. 2.
13. Ризаев Ж., Хусанбоева Ф., Олимджонов К. Взгляд стоматолога на хроническую болезнь почек //Журнал стоматологии и краниофациальных исследований. – 2021. – Т. 2. – №. 3. – С. 88-91.
14. Хусанбаева Ф., Сафаров М., Мусаева К. Оценка реакции краевого пародонта на пломбы из композитного материала и профилактика их негативного воздействия //Stomatologiya. – 2019. – Т. 1. – №. 4(77). – С. 27-30.
15. Хусанбаева Ф. А. Предортопедическая подготовка протезного ложа больных с применением методики плазмолифтинга //Conferences. – 2023. – С. 356-358.
16. Хусанбаева Ф.А. Абдурахмонов М. (2023). Связь хронической болезни почек с состоянием полости рта. Conferences, 358–360. Извлечено от http://journals.scinnovations.uz/index.php/apo so/article/view/894
17. Хусанбаева Ф. А. Предортопедическая подготовка протезного ложа больных с

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
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ISSN: 2749-3644

применением методики плазмолифтинга //Conferences. – 2023. – С. 356-358.
18. Ризаев , Ж., Хусанбаева Ф., Олимжонова Ф. (2023). Заболевания пародонта при коморбидном фоне хронической болезни почек. Стоматология, 1(1), 7–10. Извлечено от https://inlibrary.uz/index.php/stomatologiya/article/view/20479
19. Сафаров М., Хусанбаева, Ф., & Азизова, Ш. (2022). Клинико-функциональная оценка эффективности применения плазмолифтинга при экзостозах челюстей. Актуальные проблемы стоматологии и челюстно-лицевой хирургии 4, 1(01), 115–116. Извлечено от https://inlibrary.uz/index.php/problems-dentistry/article/view/15765
20. Хусанбаева, Ф., & Ризаев, Ж. (2022). Распространенность и интенсивность стоматологических заболеваний у пациентов с хбн в узбекистане. Conferences, 145–147. Извлечено от http://journals.scinnovations.uz/index.php/aposo/article/view/93
21. Абдуллаева М. М, & Хусанбаева Ф.А. (2024). Сравнительная оценка патологии твердых тканей зубов и пародонта при хроническом пиелонефрите и гломерулонефрите у пациентов с хронической почечной недостаточностью. Journal of Science-Innovative Research in Uzbekistan, 2(1), 503–508. Retrieved from https://universalpublishings.com/index.php/jsiru/article/view/4003
22. Хусанбаева Феруза Акмаловна. (2023). Сравнение акриловых и нейлоновых протезов при полной адентии в ортопедической стоматологии. Conferences, 119–121. Извлечено от http://journals.scinnovations.uz/index.php/aposo/article/view/1126
23. Абдуллаева М.М., Хусанбаева Ф.А. (2023). Некоторые аспекты распространенности пародонтита средней степени тяжести у пациентов с ХПН в Узбекистане. Conferences, 12–14. Извлечено от http://journals.scinnovations.uz/index.php/aposo/article/view/1077
24. Ризаев Ж. А., Хусанбаева Ф. А. Study of oral immunity factors in patients with chronic kidney disease //журнал репродуктивного здоровья и уро-нефрологических исследований. – 2022. – Т. 3. – №. 3.
25. Ризаев Ж. А., Хусанбаева Ф. А. Checking the effectiveness of the proposed treatment regimen for dental diseases in patients with chronic kidney disease //журнал репродуктивного здоровья и уро-нефрологических исследований. – 2022. – Т. 3. – №. 2.
26. Ризаев Ж. А. И др. The use of x-ray method of research for the evaluation of mandibular osteodystrophy in ckd //журнал стоматологии и краниофациальных исследований. – 2022. – Т. 3. – №. 1.
27. Хусанбаева Ф. А., Ризаев Ж. А. Эффективность лечения стоматологических заболеваний у больных хронический болезнями почек //Санкт-Петербургский медико-социальный институт. – 2022. – №. 1. – С. 21.
28. Хусанбаева Ф. А., Ризаев Ж. А. Эффективность лечения стоматологических заболеваний у больных хронический болезнями почек //Санкт-Петербургский медико-социальный институт. – 2022. – №. 1. – С. 21.
29. Хусанбаева Ф. А. КОМПЛЕКСНОЕ ЛЕЧЕНИЕ ЗАБОЛЕВАНИЙ ПАРОДОНТА ОРТОПЕДИЧЕСКИМИ КОНСТРУКЦИЯМИ //JOURNAL OF NEW CENTURY INNOVATIONS. – 2025. – Т. 91. – №. 1. – С. 205-210.
30. Хусанбаева Феруза Акмаловна. "ОСОБЫЕ АСПЕКТЫ АДГЕЗИИ И ФИКСАЦИИ ОРТОПЕДИЧЕСКИХ КОНСТРУКЦИЙ ИЗ ДИОКСИДА ЦИРКОНИЯ (ЛИТЕРАТУРНЫЙ ОБЗОР)". *PEDAGOGS INTERNATIONAL RESEARCH JOURNAL* 93, no. 1 (November 15, 2025): 202–204. Accessed January 28, 2026.
31. COMPARATIVE ASSESSMENT OF THE PATHOLOGY OF DENTAL HARD TISSUES AND PERIODONTITIS IN PATIENTS WITH CHRONIC RENAL FAILURE WITH CHRONIC PYELONEPHRITIS AND GLOMERULONEPHRITIS. (2025). *Web of Medicine: Journal of Medicine, Practice and Nursing* , *3*(3), 155-160.
32. COMPARATIVE DIAGNOSTIC ANALYSIS OF REMOVABLE AND NON-REMOVABLE DENTURES IN PATIENTS WITH CHRONIC KIDNEY DISEASE AND PARTIAL EDENTULISM: A LITERATURE REVIEW. (2025). Web of Medicine: Journal of Medicine, Practice and Nursing , 3(3), 614-621.

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-55 February 2026
ISSN: 2749-3644

33. Хусанбаева Ф. А. НЕКОТОРЫЕ АСПЕКТЫ РАСПРОСТРАНЕННОСТИПАРОДОНТИТА СРЕДНЕЙ СТЕПЕНИ ТЯЖЕСТИ У ПАЦИЕНТОВ С ХПН В УЗБЕКИСТАНЕ //Конференции. – 2024. – Т. 1. – №. 1. – С. 144-147.
34. Akmalovna X. F. et al. SURUNKALI BUYRAK KASSALIKLARIDA QISMAN ADENTIYADA OLINADIGAN VA OLINMAYDIGAN PROTEZLARNI O'ZARO QIYOSIY TASHXISLASH //Конференции. – 2024. – Т. 1. – №. 1. – С. 147-149.
35. Хусанбаева Ф. А. ПРОФИЛАКТИКА ЧУВСТВИТЕЛЬНОСТИ ПРЕПАРИРОВАННЫХ ЗУБОВ И АНАЛИЗ СОВРЕМЕННЫХ МЕТОДОВ ЛЕЧЕНИЯ ПРИ ОРТОПЕДИЧЕСКОЙ СТОМАТОЛОГИИ //Конференции. – 2024. – Т. 1. – №. 1. – С. 147-149.