THE PROCESS OF OSSEOINTEGRATION DURING DENTAL IMPLANTATION AND THE MODERN CONCEPT OF THE OSSEOINTEGRATION STIMULUS

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The relevance of the topic:

To date, dental implantation has been successfully used in the planning of orthopedic rehabilitation in various defects of the dentition and bone tissue. Currently, the relevance of this method of dental treatment is used worldwide with a high prevalence of partial and complete absence of teeth and the need for patients to aesthetically, effectively restore the integrity of the dental system in conditions of increasing demands for aesthetics and comfort.

The purpose of the study.

To study the data of the scientific literature to summarize the results of studies on the dynamics and study of processes and factors affecting osseointegration, which will allow us to define and conditions for a more predictable high functional result during dental implantation.

Materials and methods of research.

Osseointegration is a series of physiological processes when the implant is connected to the bone with its subsequent fixation. The main and generally accepted theory of osseointegration today is the theory of blood clot retraction "Blood clot retraction theory".This theory is based on the effect of a blood clot on the integration of bone around a dental implant. The insertion of an implant into bone is a surgical injury to biological tissue, as a result of which inflammation develops, initial manifestations of resorption and a cascade of vascular-tissue reactions with subsequent regeneration is triggered. An important role in this process is played by the state of the vascular bed and the level of blood supply in the area of damage. In conditions of ischemia, there is a tendency to the formation of fibrous and cartilaginous tissues instead of the formation of bone structures. It was found that even when the implant is twisted at high speeds and good primary stability is achieved during implant positioning, there is a gap of up to 70 microns between it and the surrounding bone. Depending on the degree of trauma of the operation, it can

subsequently increase to 120-480 microns in some areas. This space is filled with blood and tissue fluid, which are sources of biologically active substances and proteins necessary to initiate the process of osseointegration of the implant. eventually, the initial attachment of the cellular agents of the body to it takes place.

The results of the study and their discussion.

At the initial stage of osseointegration, extracellular protein fibronectin and transmembrane heterodimers integrins actively participate in the process of cell recognition and adhesion on the implant surface. A clot is formed from blood spilled from the vessels of the bone bed of the implant, including platelets, fibrin, vascular growth factors, transforming growth factor, insulin-like growth factor, etc. These components stimulate the formation of new vessels and the healing of bone tissue. A network of fibrin fibers provides the possibility of migration of osteogenic cells under the influence of growth factors synthesized by platelets to the implant surface. Growth factors attract fibroblasts and other undifferentiated cells to the fibrin matrix zone, and also stimulate their differentiation. The peculiarities of the course of this stage largely determine the further integration of the implant. The tight attachment of a blood clot to the implant surface and the formation of fibrin "bridges" between it and viable bone create conditions for the proliferation of osteogenic cells along fibrin strands towards the implant and the formation of de novo bone on the surface of the implant itself – contact osteogenesis, the main mechanism of osseointegration.

Conclusions.

Thus, the problem of finding optimal implantation technologies is relevant to date and includes not only the development of new surgical techniques, the use of new ways to stimulate osseointegration, but also the creation of a comprehensive justification for the effectiveness of new implant systems, including new methods of surface modification. Undoubtedly, new achievements in this direction will contribute to reducing the rehabilitation time of dental patients and improving their quality of life.

Literatures:

1. Alimdjanovich, R. J., Khairullaevna, O. N., & Normuratovich, N. A. (2021, September). Correction of psychological stress in children with non-pharmacological methods of dental admission. In *Archive of Conferences* (pp. 108-114).
2. Ахмедов А. А., Фуркатов Ш. Ф., Анваровна Х. М. ПОЛНЫЙ ЦИФРОВОЙ РАБОЧИЙ ХОД ДЛЯ ИЗГОТОВЛЕНИЯ СКОРОТЕЧНОЙ РЕСТАВРАЦИИ С ОПОРОЙ НА ИМПЛАНТАТЫ: КЛИНИЧЕСКИЙ СЛУЧАЙ И НОВЫЙ МЕТОД //MODELS AND METHODS FOR INCREASING THE EFFICIENCY OF INNOVATIVE RESEARCH. – 2023. – Т. 2. – №. 20. – С. 106-115.

3. Абдуллаева П. Р., Ахмедов А. А. СПОСОБ ЛЕЧЕНИЯ ИШЕМИЧЕСКИХ СОСТОЯНИЙ ЗРИТЕЛЬНОГО НЕРВА И СЕТЧАТКИ (ЛИТЕРАТУРНЫЙ ОБЗОР): Medical science //Ethiopian International Journal of Multidisciplinary Research. – 2023. – Т. 10. – №. 09. – С. 18-23.

4. Абдуллаева Н. И., Ахмедов А. А. ОСТЕО-ИММУНОЛОГИЧЕСКИЙ СТАТУС ПАЦИЕНТОВ С ЗАБОЛЕВАНИЙ ПАРОДОНТА В ПОДРОСТКОВОМ И МОЛОДОМ ВОЗРАСТЕ //TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI. – 2023. – Т. 3. – №. 11. – С. 143-149.

5. Bustanovna I. N., Sharipovna N. N. Research cases in women after menopause clinical and morphological changes in oral organs and their analysis //Journal of biomedicine and practice. – 2023. – Т. 8. – №. 3.

6. Бурхонова З. К., Рахмонбердиева Р. COMPARATIVE EVALUATION OF PARTIAL DENTURES WITH DIFFERENT ATTACHMENT ELEMENTS //American Journal of Pedagogical and Educational Research. – 2023. – Т. 16. – С. 128-131.

7. Bustanovna I. N., Berdiqulovich N. A. ПРОФИЛАКТИКА И ЛЕЧЕНИЯ КАРИЕСА У ПОСТОЯННЫХ ЗУБОВ //JOURNAL OF BIOMEDICINE AND PRACTICE. – 2022. – Т. 7. – №. 1.

8. Bustanovna, I. N. (2022). Assessment of clinical and morphological changes in the oral organs and tissues in post-menopause women. *Thematics Journal of Education*, *7*(3).

9. Bustanovna, I. N., & Sharipovna, N. N. (2023). Research cases in women after menopause clinical and morphological changes in oral organs and their analysis. *Journal of biomedicine and practice*, *8*(3).

10. Bustanovna, I. N. (2024). Complications Arising in the Oral Cavity after Polychemotherapy in Patients with Hemablastoses. *International Journal of Scientific Trends*, *3*(3), 62-66.

11. Bustanovna, I. N. (2024). The Effectiveness of the Use of the Drug" Proroot MTA" in the Therapeutic and Surgical Treatment of Periodontitis. *International Journal of Scientific Trends*, *3*(3), 72-75.

12. Bustanovna, I. N., & Abdusattor o'g, A. A. A. (2024). Analysis of Errors and Complications in the Use of Endocal Structures Used in Dentistry. *International Journal of Scientific Trends*, *3*(3), 82-86.

13. Bustanovna, I. N. (2024). Morphological Changes in Oral Organs and Tissues in Women after Menopause and their Analysis. *International Journal of Scientific Trends*, *3*(3), 87-93.

14. Bustanovna, P. I. N. (2024). Further Research the Features of the Use of Metal-Ceramic Structures in Anomalies of Development and Position of Teeth. *International Journal of Scientific Trends*, *3*(3), 67-71.

15. Bustanovna, P. I. N. (2024). Research of the Structure of Somatic Pathology in Patients with Aphthous Stomatitis. *International Journal of Scientific Trends*, *3*(3), 51-55.

16. Husanovich, C. F. (2024). RESEARCH ON THE ATTITUDE OF PEOPLE TO THE PREVENTION OF DENTAL DISEASES. *European International Journal of Multidisciplinary Research and Management Studies*, *4*(02), 265-268.

17. Исламова Н. Б., Назарова Н. Ш. СУРУНКАЛИ ТАРҚАЛГАН ПАРОДОНТИТ БИЛАН КАСАЛЛАНГАН ПОСТМЕНОПАУЗА ДАВРИДАГИ АЁЛЛАРНИНГ ПАРОДОНТ ТЎҚИМАСИНИНГ ДАВОЛАШ САМАРАДОРЛИГИ ОШИРИШ //ЖУРНАЛ СТОМАТОЛОГИИ И КРАНИОФАЦИАЛЬНЫХ ИССЛЕДОВАНИЙ. – 2023. – Т. 4. – №. 2.

18. Исламова Н. Б., Назарова Н. Ш. СОВЕРШЕНСТВОВАНИЕ ДИАГНОСТИКИ И ЛЕЧЕНИЯ ХРОНИЧЕСКОГО ГЕНЕРАЛИЗОВАННОГО ПАРОДОНТИТА У ЖЕНЩИН В ПЕРИОД ПОСТМЕНОПАУЗЫ //Conferences. – 2023. – С. 13-15.

19. Исламова Н. Б., Чакконов Ф. Х. Изменения в тканях и органах рта при эндокринных заболеваниях //Актуальные вопросы стоматологии. – 2021. – С. 320-326.

20. Исламова Н. Б., Исломов Л. Б. Особенности развития и течения заболеваний полости рта при эндокринной патологии //ББК. – 2021. – Т. 56. – С. 76.

21. Исламова Н. Б. и др. Состояние кристаллообразующей функции слюны при различных патологиях //Молодежь и медицинская наука в XXI веке. – 2014. – С. 470-471.

22. Исламова Н. Б. Сравнительная оценка противовоспалительных цитокинов крови в развитии заболеваний полости рта при гипотиреозе //Наука в современном мире: теория и практика. – 2016. – №. 1. – С. 41-44.
23. Иргашев Ш. Х., Исламова Н. Б. Применение и эффективность энтеросгеля при лечении генерализованного пародонтита //Актуальные вопросы стоматологии. – 2021. – С. 305-310.
24. Islamova N. B., Sh N. N. STUDY OF CHANGES IN PERIODONTAL DISEASES IN POSTMENOPAUSAL WOMEN //Conferences. – 2023. – С. 15-17.
25. Nazarova N. S., Islomova N. B. postmenopauza davridagi ayollarda stomatologik kasalliklarining klinik va mikrobilogik ko ‘rsatmalari va mexanizmlari //Журнал" Медицина и инновации". – 2022. – №. 2. – С. 204-211.
26. Ortikova, N., & Rizaev, J. (2021, May). The Prevalence And Reasons Of Stomatophobia In Children. In *E-Conference Globe* (pp. 339-341).
27. Ortikova, N. (2023). ANALYSISOF ANESTHESIA METHODS FOR DENTAL FEAR AND ANXIETY. *Центральноазиатский журнал академических исследований*, *1*(1), 8-12.
28. Ortikova, N. K. (2023). DENTAL ANXIETY AS A SPECIAL PLACE IN SCIENTIFIC KNOWLEDGE. *SCHOLAR*, *1*(29), 104-112.
29. Ризаев Ж. А., Ахмедов А. А. ОСНОВЫ СТОМАТОЛОГИЧЕСКОЙ ПОМОЩИ В РЕСПУБЛИКЕ УЗБЕКИСТАН НА ОСНОВЕ РАЗВИТИЯ ОБЩЕЙ ВРАЧЕБНОЙ ПРАКТИКИ //ЖУРНАЛ СТОМАТОЛОГИИ И КРАНИОФАЦИАЛЬНЫХ ИССЛЕДОВАНИЙ. – 2023. – Т. 4. – №. 3.
30. Содикова Ш. А., Исламова Н. Б. Оптимизация лечебно-профилактических мероприятий при заболеваний пародонта беременных женщин с железодефицитной анемией //Актуальные вопросы стоматологии. – 2021. – С. 434-440.
31. Sulaymonova Z. Z., Islamova N. B. TAKING IMPRESSIONS IN THE ORAL CAVITY AND THEIR REDUCTION //Conferences. – 2023. – С. 21-23.
32. Sarimsokovich, G. M. (2023). LATEST METHODS OF STUDY OF PERIODONTAL DISEASE IN WOMEN. *European International Journal of Multidisciplinary Research and Management Studies*, *3*(10), 242-250.
33. Sarimsokovich, G. M. (2023). MODERN METHODS OF RESEARCH OF PERIODONTAL DISEASES IN WOMEN. *Open Access Repository*, *4*(2), 632-639.
34. Sarimsokovich, G. M. (2023, May). CLINICAL EFFICIENCY OF THE GUIDED REGENERATION METHOD OF TISSUE IN THE TREATMENT OF CHRONIC PERIODONTITIS OF THE MIDDLE DEGREE. In *Conferences* (pp. 11-13).
35. Sarimsokovich, G. M. (2024). METHODS FOR STUDYING PERIODONTAL DISEASES IN WOMEN IN THE POSTMENOPAUSE PERIOD. *Лучшие интеллектуальные исследования*, *18*(4), 36-42.
36. Sarimsokovich, G. M. (2024). IMPROVING THE EFFECTIVENESS OF PREVENTION AND TREATMENT OF INFECTIOUS PROCESSES OF THE ORAL CAVITY IN PEOPLE USING DENTAL PROSTHETICS. *Лучшие интеллектуальные исследования*, *18*(4), 31-35.
37. Sarimsokovich, G. M. (2024). HYGIENIC ASSESSMENT OF THE CONDITION OF THE ORAL MUCOSA AFTER ORTHOPEDIC TREATMENT. Journal of new century innovations, 51(2), 51-57.