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Use of the Perio-Flow Method in the Complex Treatment of Generalised Periodontitis with Moderate to Severe Disease Severity

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Abstract

Inflammatory periodontal diseases (IPD) pose significant challenges in the field of dentistry and are considered one of the complex problems to address. According to the World Health Organization, the prevalence of inflammatory periodontal diseases among the 35-44 age group, which represents the able-bodied population, exceeds 95% in Uzbekistan. Extensive scientific research is currently underway to explore new methods and enhance existing approaches to effectively manage and eliminate inflammatory conditions in the periodontium [In the past 10-15 years, numerous scientific publications in journals and dissertations have focused on improving the treatment of periodontal diseases. Despite the attention given by researchers and practicing dentists to periodontology, there have been no significant changes in the practical implementation of dental treatment and preventive measures .The high prevalence of periodontal diseases, inadequate treatment outcomes (including surgical interventions), the progressive destruction of bone tissue leading to tooth loss, and the pressing need for effective treatment and prevention strategies for this pathology underscore the urgency of the problem.

Keywords: biofilm, periodontitis, Perio-Flow.

Introduction

A study was conducted to evaluate the effectiveness of a device called Perio-Flow (EMS, Switzerland) in removing biofilm as part of the comprehensive treatment of periodontitis. The study aimed to compare its effectiveness with traditional methods of biofilm removal. The study included 63 patients with moderate-severity periodontitis. The evaluation of the treatment effectiveness involved clinical examinations, complex treatment procedures, and the assessment of therapy results over time. The objective examination and index evaluations revealed higher rates of reduction in the severity of inflammatory phenomena when using the Perio-Flow device compared to traditional methods. Patient questionnaires indicated that the use of the device resulted in less pain during dental procedures and reduced the time required for professional hygiene by the dentist. Based on these findings, the study concludes that the Perio-Flow device is

an effective tool for professional hygiene in the prevention and comprehensive treatment of inflammatory periodontal diseases. The dentist's goal is to effectively remove plaque and deposits without causing unnecessary trauma to the soft tissues and dentition, thus preventing the development or worsening of inflammation and hypersensitivity. In our opinion, one of the most effective and promising methods for removing dental deposits is piezoelectric ultrasonic scaling. This technique involves the use of piezoelectric ultrasonic scalers to remove dental deposits and polish the surfaces of teeth and roots. By removing micro-irregularities, this method reduces the risk of tartar re-growth, plaque retention, and facilitates better oral hygiene practices. It is important to note that polished surfaces do not allow plaque to adhere easily, even in the absence of fluoride, as they do not harbor microorganisms. Overall, the use of appropriate techniques and tools, such as piezoelectric ultrasonic scalers, can contribute to effective plaque and deposit removal while promoting oral health and minimizing the risk of inflammation and plaque-related complications.

Materials and Methods

The study group consisted of 75 patients who sought treatment at the periodontological office of the Republican Dental Polyclinic in Samarkand. To ensure statistical accuracy, the study group was equally and homogeneously divided by sex (40% men and 60% women) and age (19-37 years old). The patients included in the study had no significant somatic pathology or known allergies. They also had similar clinical characteristics, with all subjects being diagnosed with chronic generalized periodontitis of moderate severity in the stage of exacerbation. The clinical presentation of the periodontitis included periodontal pockets with depths up to 5 mm and bone resorption levels on orthopantomogram not exceeding 1/3 to 1/2 of the tooth root length. Additionally, the patients did not have any dental defects, significant defects in the tooth row, or notable orthodontic abnormalities.

To assess the condition of periodontal tissues and analyze the results of the therapy, the researchers utilized a modified periodontogram. This periodontogram recorded the depth of periodontal pockets (PC) and included the following indices:

Silness-Loe Oral Hygiene Index (S-L): This index, developed by J. Silness and H. Loe in 1964, evaluates oral hygiene by assessing the presence of dental plaque and calculus on the teeth.

Simplified Oral Hygiene Index (OHI-S): This index, developed by J.C. Green and J.K. Vermillion in 1963, provides a simplified assessment of oral hygiene by recording the presence of plaque and calculus on specific tooth surfaces.

Papilla Bleeding Index (PBI): This index, developed by Saxer and Muhlemann in 1975, evaluates gingival bleeding. It assesses the bleeding response of the gums when gentle pressure is applied.

Papillar-Marginal-Alveolar (PMA) Index: This index, initially introduced by I. Schour and M. Massler in 1947 and modified by C. Parma in 1960, quantifies the degree of inflammation in the periodontal tissues. By utilizing these indices, the researchers were able to quantify the severity of inflammation, assess oral hygiene levels, and evaluate the bleeding response of the gums. This comprehensive assessment helped in evaluating the condition of the periodontal tissues and analyzing the effectiveness of the therapy provided.

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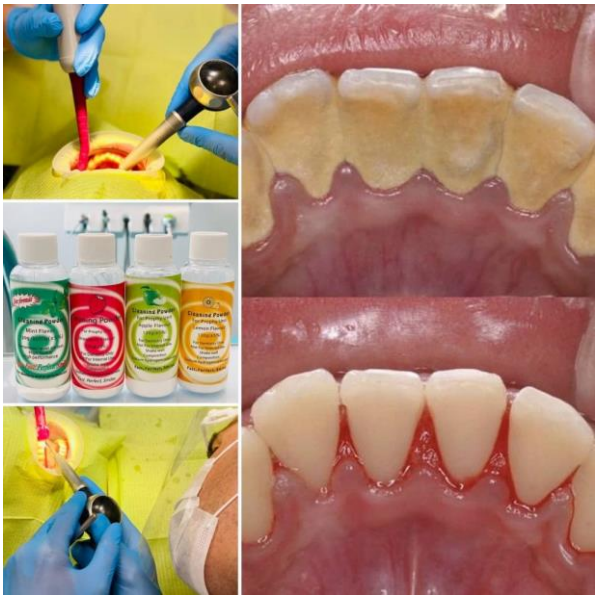
The study included three groups:

Control Group (15 people): In this group, hard dental deposits (SD) and plaque (PD) were mechanically removed using curettes and circular brushes. This group served as the control for comparison with the other groups.

Second Group (30 people): In this group, dental plaque was removed using an ultrasonic piezoelectric device called Piezon Master 700 (EMS, Switzerland). Manual removal of dental deposits was done using rubber cups and circular brushes with polishing paste.



(Figure 1) Medium density plaque was removed with AIR-FLOW Soft powder.

Third Group (30 people): In this group, dental deposits were removed using PIEZON MASTER 700 (EMS, Switzerland) along with an air-abrasive device called AIR-FLOW MASTER (EMS). Different powders were used depending on the type of plaque and its location. Densely pigmented plaque and subgingival plaque were removed with AIR-FLOW Perio powder (glycine, particle diameter 25 µm). Medium density plaque was removed with AIR-FLOW Soft powder (glycine, particle diameter 65 µm). The comprehensive treatment approach for all groups included general and local anti-inflammatory therapy, antimicrobial treatment, vitamin therapy, and local immunocorrection. These additional measures were aimed at reducing inflammation and promoting healing in the periodontal tissues. By comparing the outcomes of these three groups, the study aimed to evaluate the effectiveness of different methods and tools for removing dental deposits and improving the condition of the periodontal tissues.

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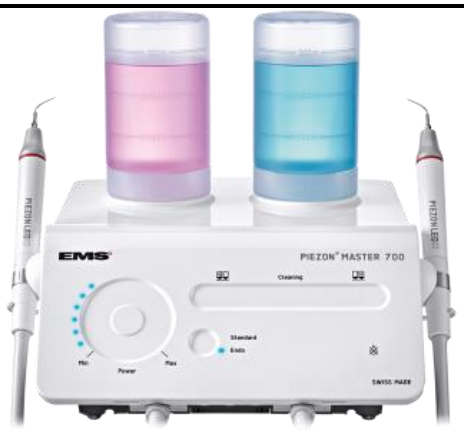

(Figure 2) Dental plaque was removed using an ultrasonic piezoelectric device called Piezon Master 700

Results and Discussion

The initial status of patients in all three groups was relatively similar. The average bleeding index, measured by the Papilla Bleeding Index (PBI), was 3.2±0.03, indicating a significant presence of bleeding gums. The values of the oral hygiene indices, Silness-Loe and OHI-S, were high, with Silness-Loe averaging 2.75±0.05 and OHI-S averaging 2.1±0.07. These high values indicated that almost all patients had poor oral hygiene. The depth of periodontal pockets (PC) varied between 3 to 5 mm, and the Papillar-Marginal-Alveolar (PMA) index, which quantifies the degree of inflammation, averaged 41.5±2.8 percent.

During the course of treatment, all groups showed a significant improvement in oral hygiene and the hygienic condition of the oral cavity. The Silness-Loe index, which measures oral hygiene, significantly reduced on average. The highest reduction was observed in Group 3, with a reduction of 78.2±0.05 percent. In comparison, the reduction in the control group and Group 2 did not differ significantly. The reduction for the control group was 62.8 percent, and for Group 2, it was 70.4 percent ($p<0.01$). These findings suggest that all treatment methods led to an improvement in oral hygiene, with Group 3 showing the highest degree of improvement. The results indicate that the use of an air-abrasive device in conjunction with the ultrasonic piezoelectric scaler (Group 3) may be the most effective approach for achieving optimal oral hygiene.

The analysis of patient questionnaires revealed several important findings regarding the different treatment methods: The treatment method using Piezon Master 400 with removal of dental deposits (MNs) using AIR-FLOW above and below the gum line was found to be the least painful. It was reported to be 2.1 times less painful than the treatment in Group 1 (scored 3.7±0.8 points), and 1.33 times less painful than in Group 2 (scored 4.8±0.4 points). These differences were statistically significant ($p<0.01$). The first treatment method (Group 1) required the longest treatment time, taking almost 1.9 times more time compared to the third method (Group 3). The second method (Group 2) also took significantly longer than the third method, by 48.5% ($p<0.05$). The clinical observations and comparative evaluations of traditional and modern methods of occupational hygiene showed that the modern methods, particularly the PERIO-FLOW technique (Group 3), exhibited superiority in all parameters. These parameters included a faster regeneration

process and positive patient feedback regarding the painlessness of the procedures. Additionally, the use of PERIO-FLOW saved time and effort for the doctor.

References

1. Abdullaeva N. I., Akhmedov A. A. Disturbances in the system of lipid peroxidation in periodontal disease //european journal of modern medicine and practice. – 2023. – Т. 3. – №. 9. – С. 57-61.
2. Abdullaeva N. I., Akhmedov A. A. Immunological Aspects of the Pathogenesis of Gingivitis and Periodontitis //Central Asian Journal of Medical and Natural Science. – 2023. – Т. 4. – №. 5. – С. 17-21
3. Abdullaeva N. I., Akhmedov A. A. The role of the microbial factor in the etiopathogenesis of inflammatory periodontal diseases //Best Journal of Innovation in Science, Research and Development. – 2023. – Т. 2. – №. 9. – С. 27-33.
4. Abdullaeva N. I., Akhmedov A. A. Osteoporosis as a Cause of Inflammatory Periodontal Diseases.
5. N. I., A., & A. A., A. (2023). Modern Methods of Early Diagnosis of Inflammatory Periodontal Diseases. Scholastic: Journal of Natural and Medical Education, 2(9), 1–6. Retrieved from https://univerpubl.com/index.php/scholastic/article/view/2528
6. N. I., A. ., & A. A., A. . (2023). Changes in Hemodynamics in the Gums of Adolescents and Young Persons With Increased Risk of Inflammatory Periodontal Diseases. Procedia of Engineering and Medical Sciences, 5, 1–8. Retrieved from
7. Astanovich A. D. A. et al. The State of Periodontal Tissues in Athletes Engaged in Cyclic Sports //Annals of the Romanian Society for Cell Biology. – 2021. – С. 235-241
8. Axmedov A. A. et al. The State of Periodontal Tissues in Athletes Engaged in Cyclic Sports //Annals of the Romanian Society for Cell Biology. – 2021. – pp. 235-241.
9. Jalalova D. et al. Combined dental and ocular pathology //Science and innovation. – 2022. – Vol. 1. – no. D8. – PP. 91-100
10. Abdullaeva N. I., Akhmedov A. A. Innovative methods for assessing chewing performance of periodontal disease in young adults//Интегративная стоматология и челюстно – лицевая хирургия. – 2023.- №.3
11. Абдуллаева Н. Искривление шпее при зубоальвеолярном удлинение у детей с вторичными деформациями зубного ряда //Collection of scientific papers «ΛΌГОΣ». – 2023. – №. May 26, 2023; Boston, USA. – С. 344-348.
12. Абдуллаева Н. Аспекты воздействия скученности зубов на развитие рецессии десен //Grail of Science. – 2023. – №. 26. – С. 474-477.
13. Абдуллаева Н., Ибрагимов Ш. Особенности и аспекты диагностики детей с открытым прикусом //Grail of Science. – 2023. – №. 26. – С. 483-486.
14. Абдуллаева Н., Ибрагимов Ш., Ахмедов Д.Основные этические принципы и клинический подход в ортодонтической стоматологии //Grail of Science. – 2023. – №. 25. – С. 450-456.
15. Абдуллаева Н. Профилактика и лечения сужения верхней челюсти с помощью использования микроимплантов //Grail of Science. – 2023. – №. 24. – С. 708-713.

15.Akhmedov Alisher Astanovich, & Abdullaeva Nilufar Ikrombekovna. (2024). IMPROVEMENT IN THE DIAGNOSIS OF CHRONIC PERIODONTITIS IN CHILDREN. World Bulletin of Social Sciences, 32, 68-70. Retrieved from https://scholarexpress.net/index.php/wbss/article/view/3953

16. Astanovich A. A., Ikrombekovna A. N. IMPLICATIONS OF TNF-α PRODUCTION ON TISSUE RESISTANCE INDEXES ORAL RESISTANCE IN CHRONIC GENERALISED PERIODONTITIS //TA'LIM VA RIVOJLANISH TAHLILI ONLAYN ILMIY JURNALI. – 2024. – T. 4. – №. 3. – C. 232-235.