УДК: 61.616.31

TREATMENT OF CHRONIC GENERALIZED PERIODONTITIS IN OVERWEIGHT PATIENTS USING MODERN METHODS

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Abstract

The relevance of studying the impact of excess body weight on periodontal health is beyond doubt in light of the increasing number of obese patients, which the World Health Organization calls a global epidemic. This article analyzes methods of effective treatment of chronic generalized periodontitis against the background of somatic diseases.

Aim. The aim of this study is to improve the prevention and comprehensive treatment of changes in periodontal tissues caused by excess body weight.

Materials and Methods. The study involved 124 patients aged 25 to 55 with chronic generalized periodontal disease (CGP) and 30 healthy controls who sought treatment at the Scientific and Practical Dentistry Center at the Bukhara State Medical Institute. Based on the study's objectives, the 154 patients were divided into three groups based on the type of local therapy. The condition of periodontal tissues was assessed using clinical (determination of periodontal pocket depth; indices: Fedorova-Volodkina hygiene, PMA, PBI, CPITN) and paraclinical (orthopantomography) examinations. Methods. The data obtained were statistically processed.

Results. It was decided to conduct studies three and six months after treatment to evaluate the long-term effectiveness of the treatment method and determine the stability of the results achieved. As a result of treatment, positive dynamics of improvement in the condition of the periodontium were observed in the main and control groups.

Conclusion. A comprehensive prevention and treatment regimen was developed that allowed for the timely prevention of possible complications caused by the disease and increased the effectiveness of treatment by 19.82%, resulting in a shorter treatment duration, a lower risk of disease relapse, and an increased period of remission.

Keywords: periodontitis, overweight, obesity, metabolic syndrome, dyslipidemia.

ЛЕЧЕНИЕ ХРОНИЧЕСКОГО ГЕНЕРАЛИЗОВАННОГО ПАРОДОНТИТА У ПАЦИЕНТОВ С ИЗБЫТОЧНОЙ МАССОЙ ТЕЛА С ИСПОЛЬЗОВАНИЕМ СОВРЕМЕННЫХ МЕТОДОВ

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Аннотация.

Актуальность изучения влияния избыточной массы тела на состояние пародонта не вызывает сомнений в свете увеличения числа пациентов с ожирением, что Всемирная организация здравоохранения называет глобальной эпидемией. В данной статье анализируются методы эффективного лечения хронического генерализованного пародонтита на фоне соматических заболеваний.

Цель данного исследования — улучшение профилактики и комплексного лечения изменений в пародонтальных тканях, вызванных избыточной массой тела.

Материалы и методы исследования. Объектом исследования явились 124 пациентов в возрасте от 25 до 55 лет с ХГП и 30 практически здоровых людей, обратившихся в научно-практический стоматологический центр при Бухарский государственный медицинский института. Исходя из целей исследования, 154 человека были разделены на три группы в зависимости от типа местной терапии. Состояние пародонтальных тканей оценивали с помощью клинического (определение глубины пародонтальных карманов; индексы: гигиена Федоровой-Володкиной, PMA, PBI, CPITN) и параклинического (ортопантомография) обследования. Методы. Полученные данные были статистически обработаны.

Результаты. Было решено провести исследования через три и шесть месяцев после лечения, чтобы оценить долгосрочную эффективность метода лечения и определить стабильность достигнутых результатов. В результате лечения в основной и контрольной группах наблюдалась положительная динамика улучшения состояния пародонта.

Заключение. Была разработана комплексная схема профилактики и лечения, которая позволила своевременно предотвратить возможные осложнения, вызванные заболеванием, и повысила эффективность лечения на 19,82%, в результате чего сократилась продолжительность лечения, снизился риск рецидива заболевания и увеличился период ремиссии.

Ключевые слова: пародонтит, избыточная масса тела, ожирение, метаболический синдром, дислипидемия.

Introduction

The relevance of studying the impact of excess body weight on periodontal health is beyond doubt in light of the increasing number of obese patients, which the World Health Organization calls a global epidemic. Today, more than 39% of the adult population is overweight, which has a significant impact on the deterioration of the oral health, in particular the periodontium. [1,3,6] The need to

develop new therapeutic approaches that take into account the specifics of the treatment of chronic generalized periodontitis (CGP) in obese patients is an important task in modern dentistry. Research shows that being overweight is not only a risk factor, but also increases the inflammatory response in periodontal tissues, leading to the rapid development of diseases. [2,5,8] In such conditions, traditional treatment methods such as mechanical cleaning and local application of antiseptics are usually not effective enough. Therefore, in global dentistry, comprehensive approaches to the treatment of chronic generalized periodontitis are being actively developed, including the use of laser therapy, chlorhexidine-based drugs and other modern methods [4,7].

The aim of this study is to improve the prevention and comprehensive treatment of changes in periodontal tissues caused by excess body weight.

Materials and Methods

The object of the study were 124 patients aged 25 to 55 years with chronic generalized periodontal disease and 30 practically healthy people who applied to the scientific and practical dental center at the Bukhara State Medical Institute. Based on the objectives of the study, 154 people were divided into three groups depending on the type of local therapy. The main group included 65 overweight patients with chronic generalized periodontitis, who were further divided into two subgroups: Subgroup A (32 patients) received standard treatment, and subgroup B (33 patients) received complex treatment using the new algorithm. The comparison group included 59 patients with chronic generalized periodontitis of normal body weight who received standard therapy. The control group consisted of 30 people and received recommendations only on oral hygiene. In the main group, subgroup B (33 patients) received combination treatment, including oral hygiene using Elugel gel and low-intensity laser therapy, and after each meal it was recommended to rinse the mouth with calendula tincture to prevent inflammation. In consultation with the therapist and endocrinologist, a general treatment was prescribed: one tablet of the antioxidant drug Fersikard, which improves blood

circulation and lowers cholesterol, once a day for a month, and one tablet of Biocalcium, once a day for 30 days, to increase bone density and reduce resorption. In patients of subgroup A of the main group and the control group, standard local treatment was used, followed by oral hygiene using Holisal gel and Eludril Care antibacterial mouthwash. The condition of periodontal tissues was assessed using clinical (determination of periodontal pocket depth; indices: Fedorova-Volodkina hygiene, PMA, PBI, CPITN) and paraclinical (orthopantomography) examinations. Methods. The data obtained were statistically processed.

Results

It was decided to conduct studies three and six months after treatment to evaluate the long-term effectiveness of the treatment method and determine the stability of the results achieved. As a result of treatment, positive dynamics of improvement in the condition of the periodontium were observed in the main and control groups. It should be noted that periodontal health indicators improved in subgroup A of the main group, consisting of overweight individuals receiving standard treatment, but did not reach the values observed in the control group with normal weight. Thus, in patients of subgroup A of the main group, the PMA index decreased from 3.5±0.4 to 2.2±0.3, the PBI index from 3.2±0.4 to 2.4±0.5, and the OHI-S index improved from 2.9±0.3 to 2.0±0.5. In patients of the control group without excess body weight, these indicators improved to 2.0±0.2, 2.1±0.2 and 1.8±0.1, respectively. These data show that standard treatment is less effective in treating overweight patients, indicating the need for a more individualized approach to treating this patient group. It should be noted that good results were observed in subgroup B of the main group, which received complex treatment. The PMA index improved to 1.8±0.3, the PBI index to 2.0±0.3, and the OHI-S index to 1.7±0.2. An improvement in periodontal condition and a higher level of oral hygiene were noted compared to subgroup A, which highlights the benefits of a

comprehensive approach to the treatment of chronic generalized periodontitis in overweight patients.

In the control group, which did not receive treatment, stability of the indicators was observed, which indicates the absence of dynamics in the condition of the periodontium. The PMA and PBI indices remained at the level of 1.2±0.1 and 1.4±0.2, respectively, and the OHI-S index remained at the level of 1.8±0.2.

Six months after completion of treatment, periodontal health in patients in each group showed varying changes. In subgroup B of the main group, which received comprehensive treatment, the indicators remained consistently good. PMA, PBI, and OHI-S scores remained unchanged, indicating that the combined treatment contributed to the consolidation of positive changes over time. Statistical significance was $p < 0.005$. (Table 1)

Table 1

PMA, PBI, and OHI-S scores before treatment and 6 months after treatment in all groups.

Group	**PMA index before treatment**		**PMA index after 6 months**	**PBI index before treatment**	**PBI index after 6 months**	**OHI-S index before treatment**	**OHI-S index after 6 months**
Main group (n=65)	A	3,5±0,4	2,9±0,4	3,2±0,4	3,1±0,6	2,9±0,3	2,6±0,6
	B	3,5±0,4	1,9±0,3*	3,2±0,4*	2,1±0,3	2,9±0,3*	1,8±0,2
Comparison group (n=59)	2,8±0,3		2,2±0,2	2,6±0,3	2,3±0,2	2,4±0,2	2,0±0,1
Control group (n=30)	1,2±0,1		1,3±0,1	1,4±0,2	1,5±0,2	1,8±0,2	1,9±0,2

*Note: * - indicates statistical significance of differences between the main subgroup B, subgroup A and the control group (p<0.005).*

In subgroup A, PMA, PBI, and OHI-S values increased again, which is likely due to the lack of long-term effect of standard treatment, especially in overweight patients. In the control group, despite initial improvements, a decline in

scores to previous levels was also observed. In the untreated group, the results remained unchanged. In subgroup A of the main group, 33.3% of patients had a pathological pocket size of 4 mm, 53.3% had a pocket size of 4 to 6 mm, and 13.3% had a pocket size of more than 6 mm. After treatment, the percentage of patients with a pocket size of less than 4 mm increased to 49.1%, decreased from 4 to 6 mm to 31%, and decreased to 0% for pockets of more than 6 mm. This demonstrates a significant improvement in periodontal condition, but the results in subgroup B were even better, underscoring the effectiveness of the comprehensive treatment. In subgroup B, 31% of patients had a periodontal size of less than 4 mm before treatment, 51% had a periodontal size of 4 to 6 mm, and 18% had a periodontal size of more than 6 mm. After treatment, 64.4% of patients had a pancreatic duct size of less than 4 mm, 23.7% had a size between 4 and 6 mm, and no patient had a pancreatic duct size greater than 6 mm. In the control group, before treatment, 49.1% of patients had a pancreatic duct size of less than 4 mm, 31% had a size between 4 and 6 mm, and 19.6% had a size greater than 6 mm. After treatment, the PC size was less than 4 mm in 53.9% of patients, between 4 and 6 mm in 39.1%, and more than 6 mm in 7.1%. The calculated statistical parameters confirm the differences between the main and comparison groups, as well as the control group ($p < 0.05$). Positive changes were observed in the study group after treatment. Biochemical and microbiological analyses were performed after treatment to assess treatment effectiveness (Table 2).

Table 2

Dynamics of biochemical parameters in overweight patients with chronic generalized hypertension during treatment.

Group		**CRP ng/ml**	**transferrin ng/ml**	**osteocalcin, ng/ml**	**Vit D, ng/ml**
Before treatment		1,45±2,13	1,63±0,31	12,5±2,5	18,6±4,2
Traditional treatment (main group A) n=32	10 days	1,32±1,88	1,65±0,44	12,4±2,5	18,6±4,2
	3 months.	1,23±1,63	1,66±0,32	12,3±0,63	18,2±4,01
	6 months	1,23±1,21*	1,7±0,24*	12,6±0,69	18,8±4,12*
Complex	10 days	1,01±1,01*	1,72±0,21*	13,4±1,01*	21,3±3,01*

treatment (main group B) n=33	3 months	0,8±0,77*	2,13±0,14*	14,2±0,98*	22,02±2,11*
	6 months	0,7±0,63*	2,33±0,21*	14,56±1,12*	24,6±0,62*

*Note: * - level of significance of differences compared to the group before treatment (P<0.05).*

In the main group of patients, biochemical parameters improved after preventive measures and complex treatment. In the main group, the average C-reactive protein level before treatment was 1.45±2.13, and after 6 months of treatment - 0.7±0.63; the transferrin level increased from 1.63±0.31 to 2.33±0.21; the osteocalcin level - from 12.5±2.5 to 14.56±1.12; the vitamin D level improved from 18.6±4.2 to 24.6±0.62. As can be seen, the use of complex treatment and preventive measures has made it possible to increase the effectiveness of treatment and prevention in overweight patients.

Discussion

The present study demonstrates that the scientific significance of the study's results is based on the unsatisfactory results of the PMA, OHI-S, and PBI indices in overweight patients, as well as their direct correlation with an increased amount of pathogenic oral microflora due to excess body weight and a high prevalence of severe periodontitis.

Biochemical analysis provides evidence that excess body weight influences the severity of periodontal disease, and the importance of studying biomarkers such as osteocalcin and vitamin D, which enable the early detection and prevention of potential complications caused by periodontal disease. The effectiveness of rinsing the mouth with calendula tincture is based on the positive dental and bacteriological efficacy of the combined use of an antiseptic and low-level laser therapy.

Conclusion

A comprehensive prevention and treatment regimen was developed that enabled the timely prevention of potential complications caused by the disease and increased treatment effectiveness by 19.82%, resulting in a shorter treatment duration, a lower risk of disease relapse, and an increased period of remission.

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