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PERIODONTAL THERAPY USING ANTIBIOTICS AND PHYTOTHERAPY: CLINICAL EFFICACY AND DIAGNOSTIC ANALYSIS

Mohinur Anvarjonova, Zilolakhon Chalaboyeva
Kokand University, Andijan Branch, Andijan, Uzbekistan.

E-mail: mohinuranvarjonova7@gmail.com

Chalaboyevazilola559@gmail.com

Tel; + 998903837471

Annotation: This manuscript presents a comprehensive analysis of inflammatory periodontal diseases, examining their prevalence, etiopathogenetic mechanisms, clinical forms, and therapeutic approaches. Drawing on epidemiological data from both global and Uzbek populations, it details age-related disease distribution, diagnostic tools (CPITN index, Shiller–Pisarev test, Kulajenko vacuum test), and modern treatment strategies. A clinical study involving 40 patients was conducted. Results indicate that "Glikodent" demonstrates high efficacy in early-stage periodontal inflammation, while antibiotic therapy proves effective in advanced disease. Accurate assessment through diagnostic indices enabled individualized treatment planning, underscoring the importance of a specific, multimodal approach. The study concludes that early diagnosis and innovative, combined treatment protocols significantly enhance clinical outcomes.

Keywords. Periodontal disease, gingivitis, periodontitis, Shiller–Pisarev test, Glikodent, antibiotic therapy, oral hygiene, dental prevention, clinical diagnostics.

Introduction. In recent years, inflammatory periodontal diseases have emerged as the most prevalent oral health pathology. According to the World Health Organization (WHO), these conditions affect 60–90% of adults aged 35–44. Severe forms can result in tooth loss and systemic disorders such as cardiovascular disease, endocrine dysfunction (notably in diabetic patients), and immune system impairment. In Uzbekistan, similar trends are observed, with 40–97% prevalence among children and adolescents. Consequently, early detection, accurate diagnosis, and effective interventions remain pivotal priorities in dentistry.

Prior studies in morphology, immunology, and microbiology have identified inflammatory and dystrophic changes as primary pathogenic mechanisms. Researchers including Muehleman, Mazor, Saburova, and Kulajenko have demonstrated correlations between periodontal disease prevalence and demographic factors such as age, sex, and geography. Notably, Saburova reported a two-and-a-half-fold increase in periodontal disorders in mountainous regions compared to plains.

In Uzbekistan, data show 40% prevalence among 5-year-olds and up to 95% in individuals aged 25–45, highlighting the need for early-stage detection and treatment innovations. Recent molecular biology research underscores the trophic and regenerative roles of sulfated glycosaminoglycans (sGAGs) in periodontal tissue repair. The novel preparation

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"Glikodent", composed of chlorhexidine, sulfated glycosaminoglycans, and mint extract, has attracted scientific and clinical interest as a promising intervention.

Objective: To investigate clinical and morphological characteristics of inflammatory periodontal diseases, analyze etiopathogenetic factors, and develop effective prevention and treatment strategies.

Aims:

1. Classify clinical forms of periodontal disease (gingivitis, periodontitis, periodontosis).
2. Identify local and systemic etiological and pathogenic factors.
3. Apply modern diagnostics (CPITN index, Shiller–Pisarev, Kulajenko).
4. Evaluate the clinical efficacy of the new "Glikodent" formulation.
5. Assess treatment effectiveness of antibiotic and natural preparations in complex therapy.
6. Develop prevention and prophylactic guidelines.

Materials and Methods. A total of 40 patients (varying ages, both sexes) with clinical evidence of periodontal disease were enrolled.
Clinical evaluation included assessment of: dental plaque, bleeding on probing, pocket depth, and tooth mobility—using the CPITN index.
Laboratory diagnostics involved:

Shiller–Pisarev test for glycogen accumulation in gingival mucosa, indicating inflammation,

Kulajenko vacuum test to assess capillary fragility of the gingiva.

Therapeutic interventions were applied as follows:

Group 1 (n=20): Antibiotic therapy

Systemic: Amoxicillin + Metronidazole, Doxycycline

Local: Arestin, PerioChip

Group 2 (n=20): Natural remedies

Chlorhexidine 0.12% mouthwash, saline rinse, Aloe vera gel, ginger extract, tea tree oil, and green tea

Glikodent local therapy: A combination mouthwash containing cholorhexidine, sulfated GAGs, and mint extract. Patient status was monitored before and after therapy, with data collected on clinical parameters and diagnostic index changes.

Results. Antibiotic Therapy (Group 1)

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Patients presented with severe periodontitis (pocket depth ≥6 mm) and alveolar bone resorption.

After 14 days: 80% showed marked reductions in inflammation, pain, suppuration, and bleeding.

CPITN scores: 75% of patients improved from scores of 3–4 down to 1–2.

Radiographs demonstrated cessation of bone loss and early signs of tissue repair.

Antibiotics proved highly effective against anaerobic pathogens but are recommended alongside mechanical debridement (scaling and root planing).

Potential systemic side effects warrant restricted and monitored use.

Natural Remedies (Group 2)

Patients had mild-to-moderate periodontitis (CPITN 1–3).

60% achieved significant reduction in gingival bleeding, mainly attributed to chlorhexidine, saline, and Aloe vera.

Ginger extract and tea tree oil contributed to noticeable decreases in edema and oral malodor.

By day 7–10, majority reported pain relief and improved oral hygiene compliance.

Natural remedies provide a safe and patient-friendly alternative for early disease, though not sufficient for advanced cases.

Glikodent Therapy

Of 20 patients, 17 (85%) experienced significant symptom relief within 5–7 days:

Pain ↓ (85%), bleeding ↓ (80%), malodor ↓ (75%).

Clinical evaluation demonstrated improved gingival tissue tone, color, and resilience.

Glikodent is effective as part of a combined regimen, showing fast-acting anti-inflammatory and antiseptic effects without notable adverse reactions.

Table 1.

Clinical indicators before and after treatment in study groups

Parameter	Group 1: Antibiotics	Group 2: Natural Remedies	Glikodent-treated
CPITN (baseline)	3.5	2.5	2.8

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Parameter	Group 1: Antibiotics	Group 2: Natural Remedies	Glikodent-treated
CPITN (post-treatment)	1.5	1.2	1.3
Gingival bleeding (%)	80%	60%	20%
Edema (gingival swelling) (%)	85%	65%	25%
Pain presence (%)	90%	50%	15%

Discussion. The findings demonstrate that antibiotic therapy is the most effective intervention for advanced periodontal disease, especially when combined with mechanical debridement. Conversely, natural remedies provide a viable, well-tolerated option for mild and moderate cases, ideal for long-term maintenance. The innovative Glikodent formulation shows promise as an adjunctive agent, combining anti-inflammatory, regenerative, and antiseptic benefits, making it a beneficial addition to combined treatment regimens.

Conclusions and Recommendations:

1. Early detection and accurate staging via CPITN and adjunctive laboratory tests enhance periodontal treatment outcomes.
2. Advanced periodontitis requires systemic antibiotics alongside professional dental cleaning for optimal results.
3. Natural therapies are effective alternatives in less severe cases and support preventive care.
4. Glikodent is recommended as a local adjunct in periodontal therapy due to its rapid symptom relief and high tolerability.
5. Educational campaigns in oral hygiene, especially at the community level, are essential to reduce disease burden.

REFERENCES

1. World Health Organization (WHO). *WHO Oral Health Database. Global Data on Dental Diseases.* Geneva: WHO. – 2023.
2. World Health Organization (WHO). *CPITN (CPI) – Dental Epidemiological Recommendations.* Geneva: WHO. – 2022.
3. Muehleman M. *Epidemiology of Periodontal Diseases* // Zurich. – 2020. – P. 213.
4. Muehleman M. *Zurich School Children Periodontal Survey* // *European Journal of Oral Sciences*. – 2015. – V. 123 – P. 287–294.
5. Saburova L. B. *Эпидемиология заболеваний пародонта* // Bishkek. – 2016. – C. 152.
6. Saburova L. B. *Топография пародонтальных заболеваний на примере Кыргызстана* // Bishkek. – 2015. – C. 134.
7. Куценко Н. Ф. *Клиническая пародонтология* // Москва. 2018. – С. 278.
8. Кулаженко В. *Клиническая диагностика в стоматологии* // Москва. – 2018. – С. 245.
9. Kulajenko V. Kulyajenko metodikasi bo‘yicha klinik tadqiqotlar // *Toshkent.* –2019. – B. 98.
10. Шиллер–Писарев. Метод определения гликогена // *Медицина*. –1979. – С. 76.

ISSN: 2692-5206
AMERICAN ACADEMIC PUBLISHER
INTERNATIONAL JOURNAL OF MEDICAL SCIENCES

11. Shiller–Pisarev. Method. *"*Method for Detecting Glycogen*."// Dental Journal*. –2020. –N. 2(8). –P. 45–47.
12. Alexander Muacevic, John R Adler. Effectiveness of Chlorhexidine and Aloe Vera Mouthwash in Patients With Periodontal Disease: A Randomized Controlled Trial // *National Library of Medicine*. –2024. –V. 16(8):
13. *"Information from Glikodent Manufacturers."* Uzbekistan. –2024.