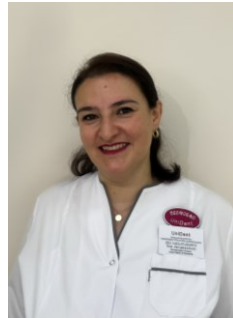




Evaluation of the Effectiveness of Periodontitis Treatment Methods with Specific Clinical-Laboratory Markers

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OBJECTIVES: The aim of the present study was to evaluate the effectiveness of periodontitis treatment methods: vector system, diode laser, vector system and diode laser combined treatment, based on the complex picture data of clinical and laboratory examinations.

METHODS: In order to solve the set goal, clinical-laboratory research and treatment were performed on 35 patients aged 20 to 60 years, diagnosed with different stages and levels of periodontitis. without concomitant chronic diseases.

Quantity, Gender Stage, Level	Quantity	Gender	
		Female	Male
Stage I A Level	7	7	0
Stage I B Level	4	2	2
Stage II A Level	3	1	2
Stage II B Level	13	9	4
Stage III B Level	7	5	2
Stage III C Level	1	1	0
All	35	25	10

Patient diagnosis was made on the base of collecting anamnesis, examination and recording clinical findings for oral cavity, detecting clinical indices, getting Ortho-pantomography and CT images as well as microbiological molecular genetic test system examination using Micro-Ident biological method, based on DNA-Strip technology, enabling identification of five periodonto-pathogenic bacteria: *Aggregatibacter actinomycetemcomitans*, *Porphyromonas gingivalis*, *Prevotella intermedia*, *Tannerella forsythia* and *Treponema denticola*.

After determining periodontal markers, the examined patients were divided into three groups:

Group I underwent therapy with the vector system,

Group II received diode laser therapy,

Group III combined therapy with the vector system and diode laser.

All patients underwent all of the above mentioned examinations prior to and two weeks after treatment. Clinical treatment was conducted adhering to a pre-established treatment protocol.



Untersuchung	Ergebnis	Einheit	Ref.Bereich	(GOA)
<i>Abstrich(1)</i> 17.01.2020 10:51				
MicroIdent - Test				
Detection of periodontitis-associated microorganisms by PCR:				
Sampling site: Pool sample				
Findings:				
Actinobacillus actinomycetemcomitans (Aa)	:	-		
Porphyromonas gingivalis (Pg)	:	+++		
Prevotella intermedia (Pi)	:	-		
Bacteroides forsythus	:	+++		
Treponema denticola (Td)	:	+++		
Very high	=	+++		
High	=	++		
Low	=	+		
Not detectable	=	-		
Given severe clinical presentation, therapy should include systemic therapy as well as invasive therapy.				
Therapy for generalised paradontitis:				
Metronidazol: 3x400mg/d Duration: 8 days				
Alternative therapy				
Clindamycin: 4x300mg/d				
Duration: 7-8 days				
Clindamycin can prove less effective given certain bacterial species, e.g. <i>P. gingivalis</i> and "Bacteroides"-species. Clindamycin is recommended in case of high Peptostreptococcus microbial count.				
We suggest renewed testing in circa 4 weeks or in accordance with the overall clinical presentation.				

Micro-Ident test

Clinical Case - Stage III C Level

Before Treatment



Ergebnis	Einheit	Ref.Bereich	(GOÄ)
Detection of periodontitis-associated microorganisms by PCR:			
Sampling site: Pool sample			
Findings:			
Actinobacillus actinomycetemcomitans (Aa)	:	+++	
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Prevotella intermedia (Pi)	:	++	
Bacteroides forsythus	:	+++	
Treponema denticola (Td)	:	++	
Very high	=	+++	
High	=	++	
Low	=	+	
Not detectable	=	-	
Given severe clinical presentation therapy should include systemic therapy as well as invasive therapy. We suggest renewed testing in circa 4 weeks or in accordance with the overall presentation.			
Metronidazol:		3 x 400 mg	
Amoxicillin:		3 x 500 mg, 8 days	
(Penicillin-allergy: Ciprofloxacin: 2 x 500 mg/d, 10 Tage)			
If tested positive for A. actinomycetemcomitans the patient's family members should also be tested.			



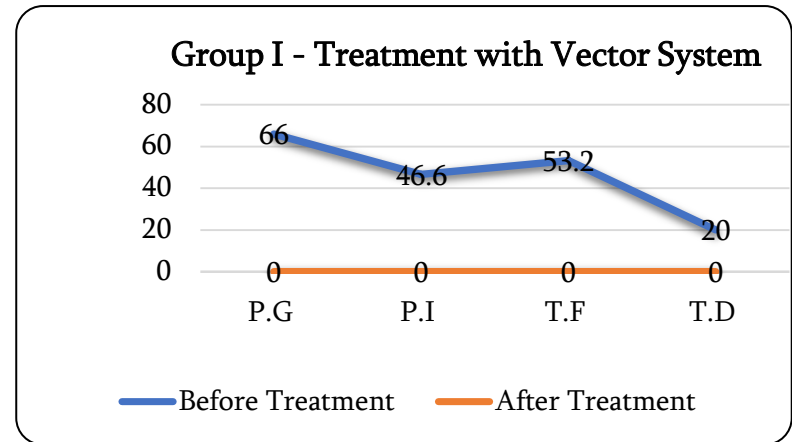
After Treatment

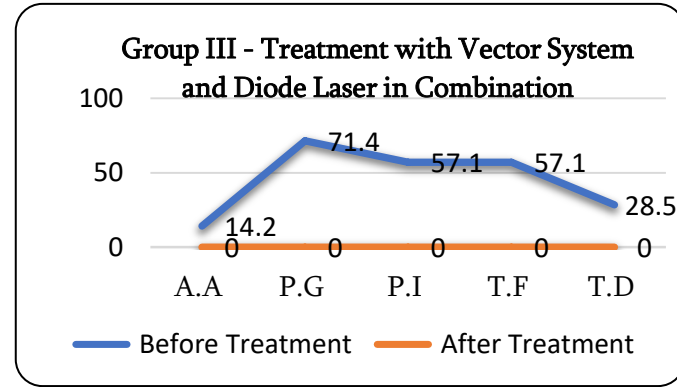
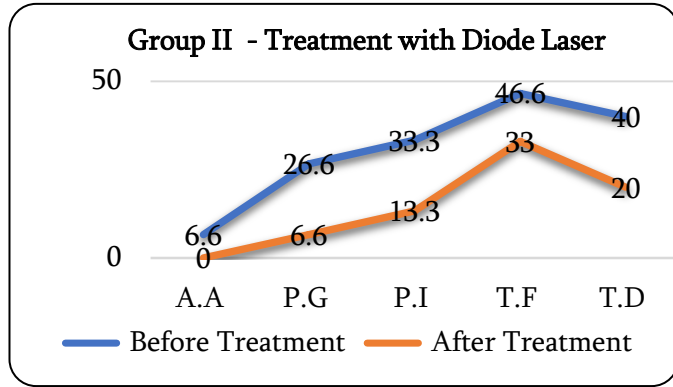


Ergebnis	Einheit	Ref.Bereich	(GOÄ)
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Detection of periodontitis-associated microorganisms by PCR:
 Sampling site: Pool sample
 Findings:
 Actinobacillus actinomycetemcomitans (Aa) : -
 Porphyromonas gingivalis (Pg) : -
 Prevotella intermedia (Pi) : -
 Bacteroides forsythus : -
 Treponema denticola (Td) : -
 Very high = +++
 High = ++
 Low = +
 Not detectable = -
 No parodontopathogenic bacteria were presently detectable.
 We do not recommend antibiotic therapy.

RESULTS: After treatment in the mentioned target groups, all patients showed a reliable improvement of the clinical picture. Processing of statistical data allowed us to establish a reliable relationship between the values obtained before treatment and as a result of treatment. Where the data obtained after the vector system, as well as the combined vector system and diode laser treatment were found to be reliable for the target parameters and the effectiveness of the treatment was established ($p < 0.05$), The diversity of the microbial spectrum revealed by the molecular biological research before the treatment, with different growth intensities, changed radically after the treatment, the quantitative and qualitative elimination of periodontal markers was noted. Which is not in the case of diode laser treatment. Consequently, diode laser treatment in periodontal pockets demonstrated a partial reduction in the quantity and type of bacteria.





Aggregatibacter actinomycetemcomit (A.A.), Porphyromonas gingivalis (P.G.), Prevotella intermedia (P.I.), Tannerella forsythia (T.F.), Treponema denticola (T.D.)

CONCLUSIONS: When objectively evaluating the results of the conservative method of periodontitis treatment, it is reliable to compare the laboratory data of quantitative and qualitative changes of periodontal markers before and after treatment. Marker-pathogenic analysis ensures the maximum reliability of the objective assessment of the therapeutic treatment result in the complex treatment of periodontitis.

KEYWORDS

Periodontal disease, anaerobic bacteria, periodontal markers, bacterial biofilm, Vector Paro, Diode Laser.