



## EVALUATION OF THE EFFECTIVENESS OF THE TREATMENT METHOD IN DYNAMICS IN PERIODONTAL TISSUE DISEASE USING PHYTOPREPARATIONS.

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### Resume

**Relevance.** The article presents the problems associated with the pathology of periodontal tissue (TP) and conducted its own study using phytopreparations "Hemostat gel" and "Clove essential oil". It has been established that the traditional approach to the treatment of chronic generalized periodontitis of severe form (CGPTF) has significant disadvantages, namely insufficient clinical efficacy, such indicators as reparative activity and a higher percentage of complications in comparison with phytopreparations. It has also been proven that the effectiveness and real place of phytopreparations such as "Hemostat gel" and "Clove essential oil" in the intended industry for the treatment of HCG.

The aim of the study was to evaluate the therapeutic effectiveness of phytopreparations for the treatment of severe chronic generalized periodontitis (CGPTF) using their combined form.

**Materials and methods.** A comprehensive clinical and dental, laboratory sociological and statistical study was conducted in 326 patients with CGPTF (according to K05.5) among 41-60 patients who applied for dental care. The dental condition of patients – periodontal tissues and phytopreparations - was studied.

**Results.** It was established during 10 and 20 daily observations that, in terms of total clinical efficacy, among the comparison base, the most adaptive drug to the treatment situation of HCG is the effective "Hemostat gel" and "Clove essential oil" less effective "Chlorhexidine". It has also been proven that the traditional approach to the treatment of HCG has significant drawbacks. An analysis of anti-inflammatory activity based on a decrease in the level of neutrophil infiltration showed that phytopreparations of oral antiseptics have better effectiveness compared with synthetic ones.

**Conclusion.** Thus, when assessing the reparative activity in the treatment of HCGPTF, phytopreparations - "Hemostat gel" and "Clove essential oil" of oral antiseptics should be considered the most effective, which means that the proposed HCGPTF treatment methods have a better level of comprehensive effectiveness compared to traditional treatment methods.

**Keywords:** periodontal tissues, dental pathology, phytopreparations, hemostat gel, clove essential oil and chlorhexidine.

Topicalities. It is known that in our country and abroad for the treatment of periodontal diseases, herbal preparations obtained from *Lagochymus intoxicans*, peppermint, stinging nettle, sea buckthorn, karatolin, *Kalanchoe*, aloe juice and liniment, *Padus Grajana Maxim*, *Macleya* are used. *Cordata*, *Prunella vulgaris*, *Rabdosiarubescens*, *Salvadora Pérsica*, *Púnica granatum*, *Azadirachta indica*, *Lippia Sidoides*, *Acacia arabica* and *Garcinia mangostana* and many others [11,12,16].

The use of fir preparations (extract and oil) in the treatment of inflammatory periodontal diseases allows to stop inflammatory processes in 88.8% of patients with mild generalized periodontitis, and in 76.9% with moderate periodontitis [1,4,10]. Thus, phytotherapy is one of the promising areas in modern dentistry, since phytopreparations have a soft complex effect on the body as a whole, are non-toxic, non-allergenic, and can be used in all age groups. They are effective in prevention and long-term treatment, and can also be a worthy alternative to antibacterial drugs [3,6,13]. Despite significant achievements in modern dentistry, the problem of treating periodontal tissue pathology remains relevant in general.

**Purpose of the study.** To provide a comparative assessment of the effectiveness of herbal preparations in the dynamic stage with combined use for the treatment of severe chronic generalized periodontitis (CGPP).

**Materials and methods.** TOA clinical-dental and clinical-laboratory study was conducted on 326 patients with chronic generalized periodontitis of severe form (HGPTF) (according to K05.5) who sought dental care at the clinic of the Tashkent State Dental Institute (TSDI) and the clinic of the Andijan State Medical Institute. The following were conducted: clinical and dental, stomatoscopic, periodontal indices CPITN, PMA, PI, the presence of complications - candidiasis, allergies, mucosal atrophy; bacterioscopic, optical microscopic; cytological; organoleptic assessment and statistical. Each patient completed a chronological study card and a register of the assessed parameters before the start of treatment, after 10 and 20 days, and at the observation period; they were also divided by treatment method; - Group 1 (112/34.35%) with the use of the phytopreparation "Hemostat gel" + "Chlorhexidine biglucanate"; Group 2 (104/46%) with the use of herbal preparation "Clove essential oil" + "Chlorhexidine biglucanate"; 3rd group - (110/33.7%) patients using 0.05% antiseptic preparation "Chlorhexidine biglucanate" (Table No. 1).

**Table No. 1.**

**Characteristics of the examined patients by treatment group, age and gender (M±n in %).**

№ №	Groups	n= person	Age and gender distribution			
			41-50 years old		51-60 years old	
			Men	Women	men	Women
1	Hemostat gel+Chlorhexidine.	112/34, 35%	24/21.4% 24/16.4%	20/17.8% 20/13.7%	41/36.6% 41/22.3%	27/24.1% 27/15%

2	Clove essential oil + Chlorhexidine.	104/46 %	19/18.3% 19/13%	30/28.8% 30/20.5%	27/25.9 % 27/15%	28/26.9% 28/15.5%
3	Chlorhexidine.	110/33.7%	22/20% 22/15%	28/25.4% 28/19.2%	28/25.4 % 28/15.5 %	32/29% 32/17.8%
4	Total for stage 1 of the study	326/100%	65/19.9% 65/44.5%	78/23.9% 78/53.4%	96/29.4 % 96/53.3 %	87/26.7% 87/48.3%
Total		326/100%	146/44.8% 146/100%		180/55.2% 180/100%	

**Note:1st row: numbers and % of treatment group, 2nd row: numbers and % of age group.**

Antiseptic [5,8,15], anti-inflammatory and reparative activity [2,7,9], periodontal status, development of complications, and recovery time during the observation period, efficiency under additional conditions in chronic hepatitis C were assessed. Also, the organoleptic characteristics of the studied drugs were assessed according to rating indicators [14], to assess the level of statistical significance of intergroup differences, methods of variation statistics were used; permanent comparison of three study groups by the method of parametric one-factor analysis of variance ANOVA (analysis of variance) according to the Scheffe criterion.

**The results obtained and their discussion.**The following results were obtained in the study of the "microbial count" indicator by the study stages in the compared groups. Before the start of treatment, the values of the indicator in the study groups were almost identical  $1580.5 \pm 248.41$  CFU/ml, which indicates the same and initially high level of microbial contamination; at the same time, the absence of statistically significant differences in the "microbial count" indicator in the compared groups was determined by ANOVA analysis of variance, Scheffe's criterion. Also, the following were revealed in the study results for "neutrophil infiltration": Group 1 -  $11.2 \pm 1.75$  cells in field of view; Group 2 -  $10.3 \pm 1.95$  cells in field of view and Group 3 -  $9.2 \pm 1.34$  cells in field of view; Moreover, the parametric one-factor analysis of variance ANOVA, Scheffe criterion, was -  $p=0.111112$  in the 1st and 2nd groups of intergroup comparisons; and in the 3rd group  $p=0.111218$ .

According to the reparative activity of periodontal tissue (PT) (periodontal pocket depth), it was established among patients in the 1st group -  $4.8 \pm 0.06$  mm; the 2nd group -  $4.2 \pm 0.09$  mm and the 3rd group -  $4.4 \pm 0.04$  mm; the gingivitis index of the RMA PT in all studied groups revealed statistically indistinguishable values of the indicator  $68.8 \pm 6.8\%$ ; at the same time, the periodontal index (PI) "indistinguishable values of the indicator  $2.5 \pm 0.22$  conventional units were revealed, in the compared groups - the Scheffe criterion,  $p = 0.111422$  in all cases of intergroup comparisons; in all studied patients - 100% the symptom of bleeding of the PT was determined as positive.

The results of determining the types of candidiasis were established: - 5.3%; - 6.7%; and - 6.3% respectively by groups: Cases of local allergic lesions of the mucous membrane were: -

9.8%; - 9.6%; and 14.5% respectively by groups and the number of cases of atrophic lesions of the mucous membrane; - 18.7%; - 17.3%; -16.3% respectively by groups.

Results after observation of treatment for 10 and 20 days with the use of herbal preparations (Hemostat gel and clove essential oil) with combined use of drugs (Chlorhexidine biglucant - 0.05%) and the use of separate synthetic drugs. The following were identified: Table No. 2.

Results of the study on "microbial count", indicator values; after 10 days of observation - in group 1; -  $335.7 \pm 33.12$  CFU/ml; - in group 2; -  $562.85 \pm 41.24$  CFU/ml; - in group 3; -  $581.4 \pm 39.82$  CFU/ml: after 20 days of observation  $114.8 \pm 21.44$ ;  $146.6 \pm 14.52$  and  $187.6 \pm 12.82$ , respectively, statistical analysis revealed: - the absence of statistically significant differences in the "microbial count" indicator between the preparations "Clove essential oil" ( $p=0.111112$ ) and "Chlorhexidine" ( $p=0.111112$ ) after 10 days and in all groups after 20 days of observation (parametric Student's t-test for unrelated samples, parametric one-way analysis of variance ANOVA, Scheffe's criterion).

Results of the study of anti-inflammatory activity "neutrophilic infiltration" after the start of treatment after 10 and 20 days in the study groups revealed a decrease in the level of neutrophilic infiltration is noted in all groups ( $p < 0.05$  in all cases of intergroup comparisons), while there is a noticeable effectiveness of herbal preparations (1st and 2nd groups). Statistical analysis revealed the presence of statistically significant differences in the "neutrophilic infiltration" indicator under the conditions of use of the compared drugs. Evaluation of the results of neutrophilic infiltration can be said that "Chlorhexidine" has a noticeable insufficient level of anti-inflammatory effect, compared with the drug "Hemostat gel" and "Clove essential oil".

The results of the indicator "periodontal pocket depth" in patients with chronic periodontal disease showed a dynamic decrease in the periodontal pocket depth, and it was expressed to the maximum in the group using "Hemostat gel" and "Clove essential oil".

**Table No. 2.**  
**Results of statistical analysis of the indicator after the 10th and 20th day of treatment with herbal preparations in patients diagnosed with HGPTF.**

Material	n, dimensions		M		± s	
"microbial count" indicator						
independent groups	"Hemostat gel"(n1=112 people.)		"Clove essential oil" (n2=104 people)		"Chlorhexidine" (n3=110 people)	
	After treatment for 10 days.	After treatment for 20 days.	After treatment for 10 days.	After treatment for 20 days.	After treatment for 10 days.	After treatment for 20 days.
Hemostat gel+Chlorhexidine. (n1=112 people)	335.7	114.8	43.12	21.44	4,321	2,144
Clove essential oil + Chlorhexidine. (n1=104 people)	562.85	146.6	41,62	14.52	4,162	1,452
Chlorhexidine (n1=110 people).	581.4	187.6	43.32	12.82	4,332	1,282
post hoc comparison of groups (parametric Student's t-test for unrelated samples, parametric one-way analysis of variance ANOVA, Schefe's test, statistical differences are considered significant at p < 0.05).						
Hemostat gel+Chlorhexidine. (n1=112 people)	0.111138	0,011144	0.111113	0.0154144		
Clove essential oil + Chlorhexidine. (n1=104 people)	0,111142	0.0441122	0,111142	0.0224423	0.111131	0.0442265
Chlorhexidine (n1=110 people).	0.111139	0.0182454	0,111142	0.0888921	0.111132	0.09978222
neutrophilic infiltration						
"Hemostatgel"(n1=112 people.)	7.28	4.44	1.75	0.98	0.175	0.098

"Clove essential oil" (n3=104 people.)	8.35	5.24	1.35	1.01	0.135	0.101
"Chlorhexidine"(n2=110 people.)	8.54	6.48	1.21	1.41	0.121	0.141
post hoc comparison of groups (parametric Student's t-test for unrelated samples, parametric one-way analysis of variance ANOVA, Scheffe's test, statistical differences are considered significant at p < 0.05).						
"Hemostatgel"(n1=112 people.)	0.031256	0.0068246	0.031256	0.0068253	0.032178	0,0066177
"Clove essential oil" (n3=104 people.)	0.040244	0,0054402	0.040262	0,0088244	0.042129	0.0033122
"Chlorhexidine"(n2=110 people.)	0.022377	0.0111122	0.022388	0.0122311		
<b>periodontal pocket depth</b>						
"Hemostat gel"(n1=112 people.)	2.8	1.8	0.08	0.055	0,008	0,001
"Carnation essential oil" (n2=104 people.)	2,2	1.4	0.02	0,009	0.002	0,001
"Chlorhexidine"(n3=110 people.)	2.4	1.9	0.04	0.006	0.004	0,001
post hoc comparison of groups (parametric Student's t-test for unrelated samples, parametric one-way ANOVA, Scheffe's test, statistical differences are considered significant at p < 0.05)						
"Hemostat gel"(n1=112 people.)	0.111124	0,011144	0.111124	0.022124	0.111124	0,011424
"Carnation essential oil" (n2=104 people.)			0.111121	0.0112221	0.111121	0.091112
"Chlorhexidine"(n3=110 people.)	0.111101	0.066101			0.111101	0.021101
<b>papillary-marginal-alveolar index (PMA)</b>						
"Hemostat gel"(n1=112 people.)	26.1	12.8	1.8	1,1	0,180	0.11
"Carnation essential oil" (n2=104 people.)	22.4	12.8	2.7	1.4	0.270	0.14
"Chlorhexidine"(n3=110 people.)	15.1	11.2	1.9	1.3	0,190	0.13
post hoc comparison of groups (parametric Student's t-test for unrelated samples, parametric one-way ANOVA, Scheffe's test, statistical differences are considered significant at p < 0.05)						
"Hemostat gel"(n1=112 people.)	0.0382444	0,0082422	0.0369137	0.00669131	0.035662	0.0022662
"Carnation essential oil" (n2=104 people.)	0.039189	0,009144	0.034959	0.0034911	0.032144	0.0011144
"Chlorhexidine"(n3=110 people.)	0.058242	0.011212			0.057622	0.011611
<b>periodontal index PI</b>						
"Hemostat gel"(n1=112 people.)	0.44	0.14	0,0001	0,001	0,0010	0.00001
"Carnation essential oil" (n2=104 people.)	0.36	0.26	0,0001	0,001	0,00010	0.00001
"Chlorhexidine"(n3=110 people.)	0.58	0.38	0.0061	0.002	0,0020	0.002
post hoc comparison of groups (parametric Student's t-test for unrelated samples, parametric one-way ANOVA, Scheffe's test, statistical differences are considered significant at p < 0.05)						
"Hemostat gel"(n1=112 people.)	0.040988	0.0088988	0.041788	0.0024788	0.041822	0.009922
"Carnation essential oil" (n2=104 people.)	0.042777	0.0056779	0.042922	0.0024922	0.041922	0.001122
"Chlorhexidine"(n3=110 people.)	0.049979	0.099999				
<b>bleeding from the gingival sulcus</b>						
"Hemostat gel"(n1=112 people.)	24.4	14.2	0,001	0,0001	0,0010	0.00001
"Carnation essential oil" (n2=104 people.)	31.8	18.4	0,001	0,0001	0,00010	0.00001
"Chlorhexidine"(n3=110 people.)	48.5	24.4	0.002	0,0004	0,0020	0,0004
post hoc comparison of groups (parametric Student's t-test for unrelated samples, parametric one-way ANOVA, Scheffe's test, statistical differences are considered significant at p < 0.05)						
"Hemostat gel"(n1=112 people.)	0.005985	0.002385	0.001548	0,000148	0,0018421	0.000011
"Carnation essential oil" (n2=104 people.)	0.002777	0.001177	0.042922	0.001222	0.0039221	0.0000391
"Chlorhexidine"(n3=110 people.)	0.009779	0.001279	0.0033445	0,0003466		
<b>Candidiasis</b>						
"Hemostat gel"(n1=112 people.)	2.6%	0.8%	0.00336	0.00033	0,001336	0.000012
"Carnation essential oil" (n2=104 people.)	3.8%	1.2%	0.00338	0.00031	0.001338	0.000048
"Chlorhexidine"(n3=110 people.)	4.5%	1.5%	0,00488	0.00098	0.002488	0.000248
post hoc comparison of groups (parametric Student's t-test for unrelated samples, parametric one-way ANOVA, Scheffe's test, statistical differences are considered significant at p < 0.05)						
"Hemostat gel"(n1=112 people.)	0.0262	0.0026	0.0288	0,0044	0,0112	0.0002

"Carnation essential oil" (n2=104 people.)	0.0029	0.0002	0,0012	0,0008	0.0019	0,0001
"Chlorhexidine"(n3=110 people.)	0.0039	0.0031	0.0021	0.0029	0.0029	0.0099
<b>Local allergy</b>						
"Hemostat gel"(n1=112 people.)	6.2%	2.1%	0,0482	0,0082	0,0412	0.0041
"Carnation essential oil" (n2=104 people.)	4.8%	2.6%	0,0112	0,0012	0.0219	0.0021
"Chlorhexidine"(n3=110 people.)	8.2%	4.8%	0,0121	0,0144	0,019	0.0679
post hoc comparison of groups (parametric Student's t-test for unrelated samples, parametric one-way ANOVA, Scheffe's test, statistical differences are considered significant at $p < 0.05$ )						
"Hemostat gel"(n1=112 people.)	0,0482	0,0082	0,00312	0.0002	0,000482	0,000001
"Carnation essential oil" (n2=104 people.)	0,0112	0.0024	0.0019	0,0009	0,000112	0,000001
"Chlorhexidine"(n3=110 people.)	0,0121	0.0991	0.0098	0.0098	0.000121	0.000019

The results of the index assessment of periodontal tissue (TP) in the study of the "gingivitis index PMA" indicator in the study groups were as follows: - in group 1; -  $26.1 \pm 1.8\%$ ; - in group 2; -  $22.4 \pm 2.7\%$ ; in group 3; -  $15.1 \pm 1.9\%$ ; in patients of the group using "Hemostat gel" and "Clove essential oil" the index value at this stage significantly decreased, compared with the 3rd group - Chlorhexidines. When studying the "periodontal index PI" indicator in the study groups, the following were revealed: - in group 1 -  $0.44 \pm 0.01$  c.u.; in group 2 -  $0.36 \pm 0.001$  c.u.; in group 3 -  $0.58 \pm 0.02$  c.u.

When studying the "gingival sulcus bleeding" index by the stages of the study in the compared groups, a noticeable decrease in the relative number of patients with bleeding occurs. However, in the 2 groups using "Chlorhexidine", the level of effectiveness "lags behind" the 1 group by 12%, and the 2 group by 15%. It was found that at the end of the observation period, an even greater decrease in the relative number of cases of gingival sulcus bleeding is achieved. At the same time, in the groups using "Hemostat gel" and "Clove essential oil", the magnitude of the decrease continues to remain identical and is from 90% to - 95%. In the group using "Chlorhexidine", the number of patients with a positive bleeding symptom is 1.5 times greater.

Based on the rating and dynamic assessment of the clinical efficacy of the compared drugs in terms of gingival sulcus bleeding in the treatment of patients with chronic gingival hyperplasia, the most effective drugs in this regard should be considered comparable among themselves "Hemostat gel" and "Clove essential oil", the least effective - "Chlorhexidine". At the same time, the results of the study of complications in the compared groups using drugs "Hemostat gel", "Clove essential oil" and "Chlorhexidine" amounted to 28%, 24% and 8%, respectively.

The results of the study to assess the types of candidiasis, the number of cases of local allergic and atrophic lesions of the mucous membrane in patients in group 3 did not show positive changes (16.3%); at the same time, it can be concluded that in terms of the development of complications, "Chlorhexidine" is a "low-effective" drug compared to "Hemostat gel", "Clove essential oil".

The results of the assessment of the integral indicator of clinical efficacy in chronic periodontal disease of the studied drugs according to 5 criteria - antiseptic activity, anti-inflammatory activity, reparative activity, complex periodontal status and complications, statistical calculation of the integral indicator of clinical efficacy of drugs using the sum of places method showed that in terms of total clinical efficacy among the comparison base, the

most adaptive drug to the situation of treating chronic periodontal disease are the effective "Hemostat gel" and "Clove essential oil" and the less effective "Chlorhexidine".

Thus, the results obtained after the 10th and 20th days of observation of treatment of patients with chronic hepatitis B with herbal preparations are empirical confirmation of the put forward scientific hypotheses that the integrated assessment of the effectiveness allows to determine the optimal preparations of oral antiseptics of the therapeutic stage increases the effectiveness of treatment in comparison with the "traditional approach". The totality of the results were evidence of the fundamental statistically significant quantitative and functional qualitative advantages of the proposed methods of treatment in comparison with the "traditional approach" to the treatment of chronic hepatitis B. At the same time, it should be noted that all the obtained results, presented as positive, have a high level of statistical significance ( $p < 0.05$ ).

**Conclusions.** The traditional approach to the treatment of chronic hepatitis C has significant drawbacks, namely, insufficient clinical effectiveness of such indicators as reparative activity and a higher percentage of complications compared to herbal preparations. Analysis of anti-inflammatory activity based on a decrease in the level of neutrophil infiltration showed that herbal preparations of oral antiseptics have better effectiveness compared to synthetic ones.

The obtained results prove that the effectiveness and real place of herbal preparations – such as, "Hemostat gel" and "Clove essential oil" in the intended industry for the treatment of chronic periodontal disease. In fact, the proposed method of treatment using these principles of the therapeutic program allows achieving the best clinically and statistically significant results in the form of accelerating the timing of the periodontal process and positive treatment results while minimizing the development of complications.

When assessing the reparative activity in the treatment of chronic hepatitis C, the most effective should be considered herbal preparations - "Hemostat gel" and "Clove essential oil" oral antiseptics, this means that the proposed method of treating chronic hepatitis C has a better level of complex effectiveness compared to traditional methods of treatment when used in a combined form.

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