

ORIGINAL RESEARCH

To Evaluate The Clinical Efficacy Of Tooth Paste Containing Mineral Salts And Herbal Extracts In Treating Subjects With And Without Gingivitis Before And After Phase I Periodontal Therapy

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ABSTRACT

Introduction: Elimination of microbial dental plaque biofilm prevents gingivitis, periodontitis, and dental cavities. To compare and correlate the clinical efficacy of toothpaste containing mineral salts and herbal extracts in treating patients with and without gingivitis before and after phase I periodontal therapy.

Materials and Methods: 50 subjects aged 18-19 years of which 25 subjects were gingivitis and 25 subjects were healthy volunteers were included in this study. Group A comprised of 25 subjects diagnosed with the presence of clinical signs of gingivitis, includes redness, odema, bleeding on probing, change in contour or consistency, presence of plaque or calculus with no radiographic evidence of crestal bone loss. Group B comprised of 25 subjects without any clinical signs of gingivitis. Sulcular Bleeding Index by Muhlemann and Son, Turesky Gilmore Glickman modification of Quigley Hein Index was recorded at baseline and both the groups were asked to use the toothpaste containing mineral salts and herbal extracts and after one month of phase I periodontal therapy, baseline measurements were repeated.

Results: Using Independent t-test, statistically significant differences in the score between the two groups was found.

Conclusion: This study concludes that using the toothpaste containing mineral salts and herbal extracts showed greater improvement of gingival status in gingivitis cases in comparison to the control group.

Keywords: plaque, periodontitis, gingivitis

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INTRODUCTION

INTRODUCTION

Elimination of microbial dental plaque biofilm prevents gingivitis, periodontitis, and dental cavities.¹ Although, brushing teeth twice a day and daily flossing is highly effective in plaque reduction, over 50% of adults have gingivitis on an average of 3 to 4 teeth.²

The considerable prevalence of gingival inflammation within the general population suggests that most patients practice inadequate oral hygiene, particularly within certain regions of their mouths and in certain areas of their teeth. Bacteria in dental plaque are one of the main factors causing periodontal inflammation;³ the plaque control is an important measure in establishing good oral health.

A number of controlled clinical trials have demonstrated that tooth brushing with herbal dentifrices reduces supragingival plaque and

gingivitis.⁵ Parodontax is mainly composed of sodium bicarbonate, and herbal ingredients like camomile, echinacea, sage, myrrh, and peppermint oil. Each component have a good amount of medicinal properties which helps in maintaining adequate oral hygiene.

The main aim of this study is to compare and correlate the clinical efficacy of toothpaste containing mineral salts and herbal extracts in treating patients with and without gingivitis before and after phase I periodontal therapy.

MATERIALS AND METHODS

50 subjects aged 18-19 years of which 25 subjects was gingivitis and 25 subjects was healthy volunteers were included in this study with the approval of ethical committee and informed consent were obtained from each of the participants.

The inclusion criteria were 20-40 years of age, poor oral hygiene status, and signs of gingival inflammation corresponding with chronic marginal gingivitis. The criteria for exclusion were advanced periodontal inflammation, presence of fixed orthodontic appliances, taking antibiotics or anti-inflammatory medicines less than one month before the study began, pregnant females, and nursing mothers.

Group A comprised of 25 subjects diagnosed with the presence of clinical signs of gingivitis, includes redness, odema, bleeding on probing, change in contour or consistency, presence of plaque or calculus with no radiographic evidence of crestal bone loss.

Group B comprised of 25 subjects without any clinical signs of gingivitis. Sulcular Bleeding Index by Muhlemann and Son, Turesky Gilmore Glickman modification of Quigley Hein Index was recorded at baseline and both the groups were asked to use the toothpaste containing mineral salts and herbal extracts and after one month of phase I periodontal therapy, baseline measurements was repeated.

STATISTICAL ANALYSIS

Data were analysed using SPSS version 21. To find the between group difference independent t-test

was used and to evaluate within group difference Paired t-test was used.

RESULTS

Before treatment, higher mean QHI was recorded in gingivitis group compared to healthy group and the difference between them was found to be statistically significant ($P < 0.001$).

After treatment also, higher mean QHI was recorded in gingivitis group compared to healthy group and the difference between them was found to be statistically significant ($P < 0.001$). (Table 1) Before treatment, higher mean SBI was recorded in gingivitis group compared to healthy group and the difference between them was found to be statistically significant ($P < 0.001$).

After treatment also, higher mean SBI was recorded in gingivitis group compared to healthy group and the difference between them was found to be statistically significant ($P < 0.001$). (Table 2) The reduction in mean QHI from before treatment to after treatment in healthy group was found to be statistically significant ($P < 0.001$).

The reduction in mean QHI from before treatment to after treatment in gingivitis group was found to be statistically significant ($P < 0.001$). (Table 3)

DISCUSSION

Many other clinical studies also support the efficacy of Parodontax® in patients with gingivitis. For instance, in a study on gingivitis patients who used Parodontax®, the patients ($n = 207$) were instructed to brush their teeth with Parodontax® toothpaste after every meal and then rub the toothpaste into their gums. Despite the short observation period, gingival bleeding disappeared almost entirely in 25–30% of all patients.⁶

In a 20-day examination, proved the anti-inflammatory effect of Parodontax® toothpaste in a group of 40 patients who were suffering from gingivitis. The patients were instructed to brush their teeth twice a day with Parodontax® toothpaste and leave the toothpaste in the mouth for a few minutes. In a 4-week double-blind study with 168 gingivitis or periodontitis patients, Parodontax® toothpaste yielded much better results in

Table-1: Comparison of Quigley Hein Index *denotes significant difference

Time Interval	Group	Mean	Std Dev	SE of Mean	Mean Difference	P-Value
Before	Healthy	0.31	0.12	0.02	-0.435	<0.001*
	Gingivitis	0.75	0.08	0.02		
After	Healthy	0.22	0.08	0.02	-0.159	<0.001*
	Gingivitis	0.38	0.09	0.02		

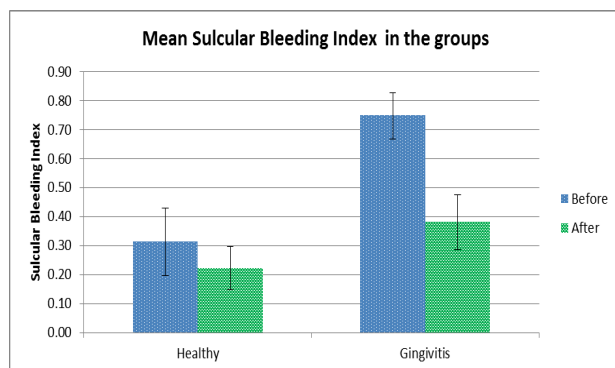
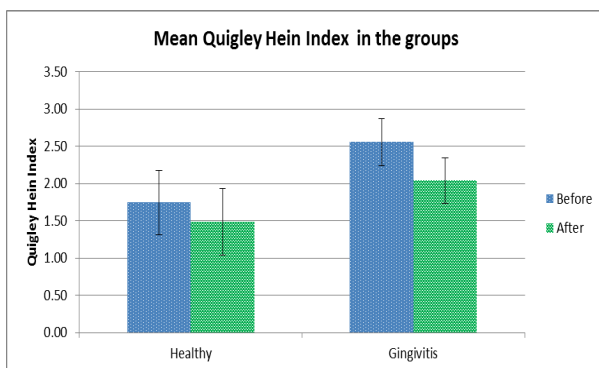
Table-2: Comparison of Sulcular Bleeding Index (SBI)

Comparison of SBI						
Time Interval	Time Interval	Mean	Std Dev	SE of Mean	Mean Difference	P-Value
Healthy	Before	0.31	0.12	0.02	0.091	0.091
	After	0.22	0.08	0.02		
Gingivitis	Before	0.75	0.08	0.02	0.367	0.367
	After	0.38	0.09	0.02		
Comparison of QHI						
Healthy	Before	1.74	0.43	0.09	0.261	<0.001*
	After	1.48	0.45	0.09		
Gingivitis	Before	2.55	0.31	0.06	0.516	<0.001*
	After	2.04	0.31	0.06		

Table-3: Comparison of SBI and QHI before and after treatment in each group: (Wilcoxon Signed Ranks Test)*denotes

Time Interval	Group	Mean	Std Dev	SE of Mean	Mean Difference	P-Value
Before	Healthy	1.74	0.43	0.09	-0.809	<0.001*
	Gingivitis	2.55	0.31	0.06		
After	Healthy	1.48	0.45	0.09	-0.554	<0.001*
	Gingivitis	2.04	0.31	0.06		

significant difference

**Graph-1:** Mean Quigley Hein index in groups; **Graph-2:** Mean Sulcular Bleeding Index in groups

terms of bleeding, swelling, redness, and taste, than did a placebo toothpaste without herbal active ingredients. These studies demonstrate that the use of Parodontax® by gingivitis patients can lead to definite improvement.^{3,4}

The current clinical study – in which gingival inflammation was clearly reduced confirms these earlier results. The results of the clinical study demonstrated that both of the tested herbal dentifrices were effective and led to an

improvement in oral hygiene and in the periodontal status in patients with gingivitis.⁵

The use of herbal dentifrices led to a considerable reduction in dental plaque accumulation both on smooth and approximal tooth surfaces. Final values of plaque indices in herbal test groups were significantly lower compared to baseline data and to corresponding values in the conventional group. Use of herbal extracts helps

in adequate plaque control in the interproximal areas.

Thus in this present study, parodontax tooth paste was more effective in controlling dental plaque and helps in maintaining good oral health.

CONCLUSION

Regular application of herbal extract dentifrices provided significant reduction of dental plaque accumulation and some gingival inflammation signs such as gingival bleeding. These agents possess bactericidal activity against most of the periodontal pathogens without a negative influence on the normal microflora. The antimicrobial herbal extract dentifrices tested in this study can be recommended to adults with gingivitis for plaque control and to reduce gingival inflammation.

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