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Original Article

Comaprison of efficacy of 0.2% chlorhexidine gluconate (hexy-mw) and herbal (hiora) mouth wash in controlling gingival and plaque index-a comparative study

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ABSTRACT

Background: Microbial plaque is a paramount factor in initiation and progression of periodontal diseases. The present study was conducted to evaluate the efficacy of 0.2% chlorhexidine gluconate (Hexy-MW) and herbal (Hiora) mouth wash in study population. **Materials & Methods**: The present study was conducted on 30 subjects age ranged 20-40 years of both genders. All subjects were divided into 2 groups. Group I (15) had subjects who were prescribed 0.2% chlorhexidine gluconate (Hexy-MW) and group II (15) had subjects who were prescribed herbal (Hiora) mouth wash. In both groups, PI and GI were assessed. **Results**: The mean PI in both groups. In group I, on 0 day, the value was 0.02 which on 15th day was 0.11 and after 1 month was 0.17. In group II, on 0 day, the value was 0.03 which on 15th day was 0.13 and after 1 month was 0.19. In both the groups value increased but the difference was non-significant (P> 0.05). In group I, on 0 day, the value was 0.13 which on 15th day was 0.08 and after 1 month was 0.09. In group II, on 0 day, the value was 0.1 which on 15th day was 0.09 and after 1 month was 0.11. The improvement in gingival index in group I was slightly more as compared to group II at the end of the study but non-significant difference was observed (P> 0.05). **Conclusion:** Both chlorhexidine gluconate and Hiora found to be equally effective in controlling gingival index and plaque indeed in patients.

INTRODUCTION

Oral health is very important to the appearance and sense of well being. Emerging evidence has shown a strong link between the effects of oral health on the general health. According to WHO oral health is defined as a state of well being free from chronic mouth and facial pain, oral and throat cancer, oral sores, birth defects such as cleft lip and palate, periodontal diseases, tooth loss, other diseases and disorders that affect the oral cavity. Oral health can be maintained on a regular basis by using different plaque control methods which include mechanical and chemical methods.1

It is well known that microbial plaque is a paramount factor in initiation and progression of periodontal diseases. The results of the clinical trials and analysis of literature indicates a strong correlation between microbial plaque levels and severity of gingivitis. Plaque control has long been considered as the cornerstone of its management. Regular effective removal of microbial plaque by the personal oral hygiene protocol is the most rational methodology towards the prevention of periodontal diseases.2

Mouthwashes are antibacterial in nature and help in preventing carious bacteria to flourish in the mouth. They can be broadly classified as chemical mouthwashes and herbal mouthwashes. Chemical

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Group I	Group II	P value
0.2% chlorhexidine gluconate	Hiora mouth wash	1
15	15	

Table I Distribution of subjects

mouthwashes containing: chlorhexidine, a bis-biguanide which is the most commonly used and is gold standard in antimicrobial efficacy. Inspite of them being used since ages, they still have certain disadvantage like discoloration of teeth, dryness of mouth, erosion of enamel etc. Herbal mouthwash provides a viable alternative as they are alcohol-free, chemical free and contains time tested herbal oils and extracts like- neem oil, clove and pilu that actually promote oral health.3

HiOra is a herbal mouthwash (manufactured by the Himalaya Drug Company Makali, Bangaluru, India); each gram contains 5.0 mg of Pilu (Salvadora persica), 10 mg of Bibhitaka (Terminalia bellerica), 10 mg of Nagavalli (Piper betel), 1.2 mg of Gandhapura taila, 0.2 mg of Ela, 1.6 of Peppermint satva and 0.4 mg of Yavanisatva. It is claimed that it acts as an oral antiseptic and prevents tooth decay. It is also claimed to prevent bad breath and reduces plaque and gingivitis.4 Considering this the present study was conducted to evaluate the efficacy of 0.2% chlorhexidine gluconate (Hexy-MW) and herbal (Hi0ra) mouth wash in study population.

MATERIALS & METHODS

The present study was conducted in the department of Periodontics. It comprised of 30 subjects age ranged 20-40 years of both genders. All were informed regarding the study and written consent was obtained. Ethical clearance was obtained prior to the study. Subjects with history of systemic disease, history of periodontal disease and surgery were excluded. General information such as name, age, gender etc. was recorded in case history proforma. All subjects were divided into 2 groups. Group I (15) had subjects who were prescribed 0.2% chlorhexidine gluconate (Hexy-MW) and group II (15) had subjects who were prescribed herbal (Hiora) mouth wash. Before the experimental phase, each participant received oral prophylaxis to remove plaque, calculus and stains from the teeth.

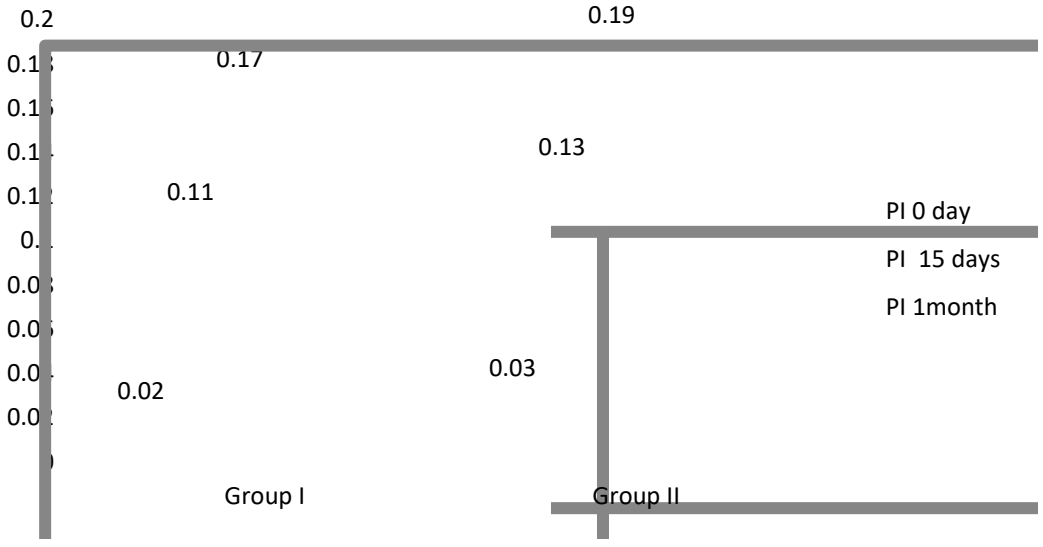
In all subjects, the gingival index (GI) and plaque index (PI) scores were recorded. Subjects in group I were advised to rinse with 10 ml of 0.2% chlorhexidine while those in group II were prescribed 15 ml of Hiora twice daily for 1 min for 15 days. Plaque index (PI) and gingival index (GI) were recorded at the baseline, on Day 0, after 15 days and one month. All clinical parameters were measured with a graduated Williams probe calibrated in millimeters at six sites per tooth (mesio-, mid-, and distobuccal, and mesio-, mid-, and distopalatal). Results were tabulated and subjected to statistical analysis. P value < 0.05 was considered significant.

RESULTS

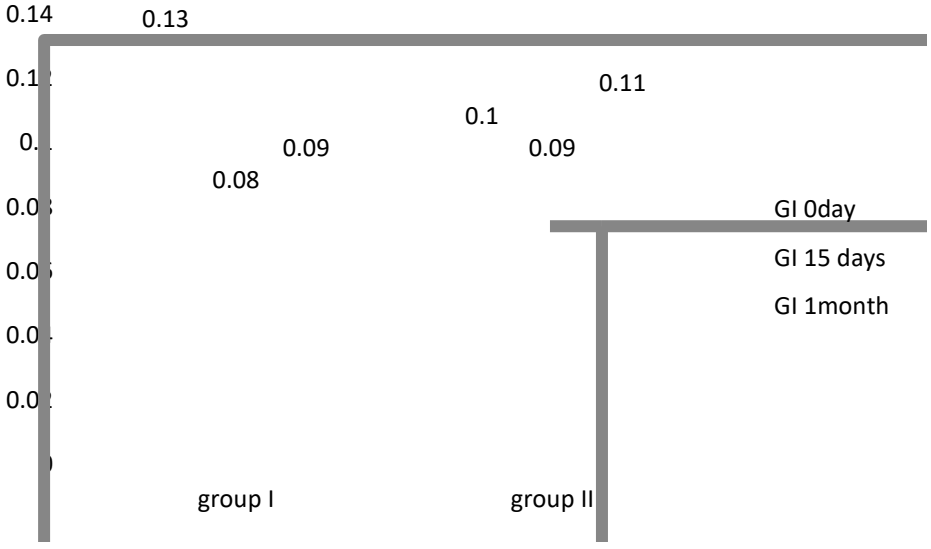
Table I shows that group I included 15 subjects who used 0.2% chlorhexidine digluconate and group II included 15 subjects who used Hiora mouth wash. The difference was non- significant (P- 1).

Graph I shows the mean PI in both groups. In group I, on 0 day, the value was 0.02 which on 15th day was 0.11 and after 1 month was 0.17. In group II, on 0 day, the value was 0.03 which on 15th day was 0.13 and after 1 month was 0.19. In both the groups value increased but the difference was non- significant (P> 0.05).

Graph I Comparison of PI in both groups



Graph II Comparison of GI in both groups



Graph II shows the mean GI in both groups. In group I, on 0 day, the value was 0.13 which on 15th day was 0.08 and after 1 month was 0.09. In group II, on 0 day, the value was 0.1 which on 15th day was 0.09 and after 1 month was 0.11. The improvement in gingival index in group I was slightly more as compared to group II at the end of the study but non-significant difference was observed (P> 0.05).

DISCUSSION

The present study was designed to determine the efficacy of a herbal mouthwash (Hiora) with

chlorhexidine (Hexy-MW) mouthwash. Saliva is continually refreshed, rinsing away the active ingredients of mouthrinses. But plaque remaining after mechanical cleaning absorbs mouthrinse antimicrobials, serving as a reservoir to prolong the product's substantivity.5 The classic experiments of Loe et al (1965)6 demonstrated that accumulation of microbial plaque results in the development of gingivitis and its removal and control results in the resolution of the lesions in humans, thereby proving plaque as the microbial etiology of the disease as mentioned by Page.7

Mechanical measures such as tooth brushing and other home devices are the most commonly used methods to clean the teeth. However it has been revealed that the vast majority of patients will not always completely remove all the plaque by these ways. Furthermore for handicapped or elder individuals use of mechanical methods is more problematic due to their compromised dexterity or motivation. To overcome those shortcomings chemical plaque control has been a subject of scientific interest.8

In present study, 15 patients were prescribed hiora mouth wash and 15 patients were put on hexy mouth wash. Their plaque index and gingival index was assessed on baseline, on 15th day and after 1 month. We observed that in both groups, the plaque value increases but the difference was non- significant. Similarly on comparing gingival index, the improvement in group I was slightly more as compared to group II at the end of the study but the difference was non- significant. This is in agreement with Malhotra et al.9

Herbal remedies traditionally used to help combat gingival bleeding and gingivitis include mouthwashes, dental oils and herbal supplements. Hiora is a herbal preparation, made from natural herbs and because of its unique combination it has various beneficial properties like antiseptic, antibiotic, antioxidant, antiinflammatory, etc.10 Soderling et al11 evaluated the antiplaque and antigingivitis effects of Hiora in the treatment of plaque-induced gingivitis and found that it can be effectively used as an adjunct to mechanical therapy with less side effects. Likewise, Chlorhexidine mouthwash also proved to be effective as an adjunct to mechanical home care methods with significant reduction in plaque accumulation and gingivitis levels in various studies.12,13

In a study by Mehta et al14, samples were randomly divided into four groups namely Group A, Group B, Group C and Group D who rinsed with water, chlorhexidine mouthwash, xylitol mouthwash and herbal mouthwash respectively. Plaque index (PI) and gingival index (GI) were recorded at baseline and after 30 days. It was found that after 30 days maximum reduction was shown by Group D (Herbal mouthwash) in plaque scores (from 0.431 to 0.268) and gingival scores (from 0.208 to 0.075) while minimum reduction was shown by Group B (Chlorhexidine mouthwash) in plaque scores (from 0.458 to 0.278) and gingival scores (from 0.189 to 0.078). After 30 days maximum reduction in total microbial colony count was seen in Group D (Herbal mouthwash) and minimum was seen in Group B (Chlorhexidine mouthwash).

One shortcoming of this study was the small sample size. More studies using a longer duration and regarding substantivity of Hiora mouthwash can be performed. Studies of longer duration, in which the product in question is compared to other control or placebo products and where safety and microbiological parameters are assessed, are necessary to establish the effectiveness of this product and its position among

the other agents used for chemical support of daily mechanical plaque control.

CONCLUSION

Both chlorhexidine gluconate and Hiora found to be equally effective in controlling gingival index and plaque indeed in patients.

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