

Comparative Anti-plaque and Anti-gingivitis Efficacy of Two Commercially Available Mouthwashes - 4 Weeks Clinical Study

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ABSTRACT

Therapeutic mouthwashes are often recommended as an adjunct to mechanical plaque control for prevention of plaque formation and maintain gingival health. The present clinical study was for the duration of four weeks and focused on **two specific mouthwashes: HEXIDINE (0.2% chlorhexidine)** and **SEFDENT** (a dual action mouthrinse with clove oil and sorbitol, sol isopropyl myristate, sodium saccharin) both claims to be effective in the treatment of gingivitis. **HEXIDINE** (Chlorhexidine) has long-standing research to substantiate its safety and efficacy whereas the **SEFDENT** mouthwash used in this study is a **new mouthwash** with many components in it. Subjects were randomly allocated into either the test group (n = 10, Sefdent) or the control group (n = 10, Hexidine). Plaque levels were measured using the Turesky's modification of the Quigley & Hein Plaque Index (PI), and gingivitis was evaluated and recorded with the Gingival Index (Loe and Silness 1963) (GI) at 0 day, 15th days and 30th day. All Subjects were instructed with oral hygiene instructions. First scaling and root planning was performed on all subjects and then they were asked to rinse twice daily with one of the mouthwashes (HEXIDINE or SEFDENT). Both the mouth-rinses studies turned out to be statistically significant but control group (HEXIDINE) showed significant improvement in plaque index, gingival scores, when compared to test group (SEFDENT). This shows that chlorhexidine remains a gold standard in improving the gingival status.

Keywords: Gingivitis, Chlorhexidine, Sefdent

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INTRODUCTION

The most Prevalent Infectious Oral Diseases In Human Beings Namely Caries And Periodontal Diseases Are Associated With Dental Plaque. Plaque Is The Primary Etiological Factor In Gingival Inflammation (1). oral Hygiene Failure Results In Formation Of Pathogenic Plaque Which Further Lead To Gingivitis/Periodontitis (2). It is generally understood that periodontitis is preceded by gingivitis, though signs of gingivitis may not always be apparent during bursts of disease activity leading to further attachment loss (3).

In many individuals, the customary oral hygiene method of tooth brushing is, by itself, usually insufficient over long periods to provide a level of plaque control consistent with oral health. Because of the difficulty to ensure adequate removal of plaque by mechanical means, there is a great

interest in the use of therapeutic mouthwashes to be adjuncts to the mechanical approaches Mouthwashes have been used for centuries for medicinal and cosmetic purposes, but it is only in recent years that the rationale behind the use of the ingredients has been subjected to scientific research and clinical trials. Mouthwashes have the ability to deliver therapeutic ingredients and benefits to all accessible surfaces of mouth including interproximal surfaces. They also remain effective for extended period of time depending on their composition. Consequently, the incorporation of chemical agents with anti plaque or antimicrobial activity into dental products has been proposed as a potential prophylactic method of reducing plaque-mediated diseases.

The purpose of present clinical study for the duration of 4 weeks was focused on

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two specific mouthwashes *HEXIDINE* and *SEFDENT*, both claiming to be effective in the treatment of gingivitis.

MATERIALS & METHODS

Source of Data: The clinical study was conducted in the Department of Periodontology and Oral Implantology I.T.S-CDSR, Murad Nagar Ghaziabad

Inclusion Criteria

20 patients with age group of 20 to 30 years with gingivitis and patients free from systemic illness.

Exclusion Criteria

Patients received antibiotic treatment 6 months prior to study, Inability to comply with the follow-up visit requirements and Pregnant & nursing patients.

Study Design

This study involved randomized clinical

trials with 20 patients (11 females & 9 males) were included in the study. Both patients were instructed with oral hygiene instructions & scaling and root planning was performed and then they were asked to rinse twice daily with one of the mouthwashes (HEXIDINE/SEFDENT).

Two regimes of mouthwashes groups were prescribed

- HEXIDINE twice daily
- SEFDENT (Dual action mouth rinse with clove oil) twice daily.

The clinical parameters were recorded at 0 day, 15th day, 30th day intervals.

Clinical Parameters

- Plaque Index (Turesky’s Gilmore Glickman modification of Quikley Hein Plaque Index (4).
- Gingival Index (Loe and Silness 1963)(5).

RESULTS

All 20 patients enrolled in this study reported for schedule post treatment evaluation visits so the response rate to the study was 100%.

Plaque Index

No statistically significant difference in the mean values for the gingival index was found between the test (HEXIDINE) and control groups (SEFDENT) at baseline but a significant difference was observed at 15th days and at 30 days (p < 0.05) (Table 1 and Figure 1).

Gingival Index

No statistically significant difference in the mean values for the gingival index was found between the test (HEXIDINE) and control groups (SEFDENT) at baseline but a significant difference was observed at 15 days and at 30 days (p < 0.05) (Table 2 and Figure 2).

DISCUSSION

The study was conducted to determine the efficacy of two commercially available mouthwashes i.e. HEXIDINE (Test) & SEFDENT (Control) on Plaque scores and Gingival status over a period of 4 weeks. It was found that reduction in Plaque Scores in control group between baselines to 30 days was found to be 32.17% whereas in case of test group it was found to be 22.49%, our study demonstrated statistically significant reduction in the plaque scores in both the test and the control groups. However, the control group demonstrated more reduction of the plaque score compared to the test group at 30 day interval.

Considering the Gingival Index on days 0, 15th and 30th was compared in both the test group and control group. Results showed a highly significant change with regard to improvement in the gingival inflammation in control group 24.18% whereas in case of test group it was found to be 13.38% so we can observe that control group was better choice of mouthwash.

LANG LP stated that the substantivity of an antimicrobial agent needs sufficient

| Table 1: Showed the analysis of plaque indices in both HEXIDINE and SEFDENT group were helpful in reducing plaque score | | | |
|---|--------------|-------------|---------|
| HEXIDINE | | | |
| TIME | Mean ± SD | % REDUCTION | P VALUE |
| BASELINE | 1.231± .1345 | — | — |
| 15 DAY | 1.028± .0535 | 16.49% | < 0.05 |
| 30 DAY | .835±.0401 | 32.17% | < 0.05 |
| SEFDENT | | | |
| TIME | Mean ± SD | % REDUCTION | P VALUE |
| BASELINE | 1.125± .1564 | - | |
| 15 DAY | 1.097± .0951 | 2.49% | < 0.05 |
| 30 DAY | .872±.2434 | 22.49% | < 0.05 |

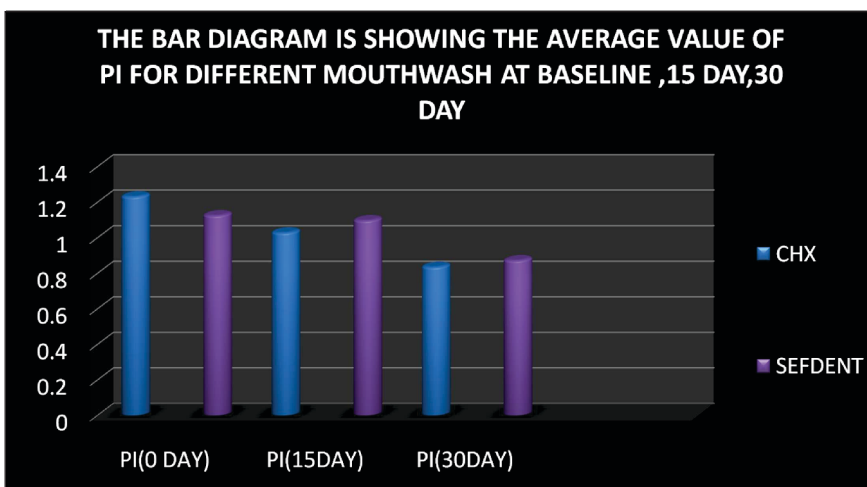
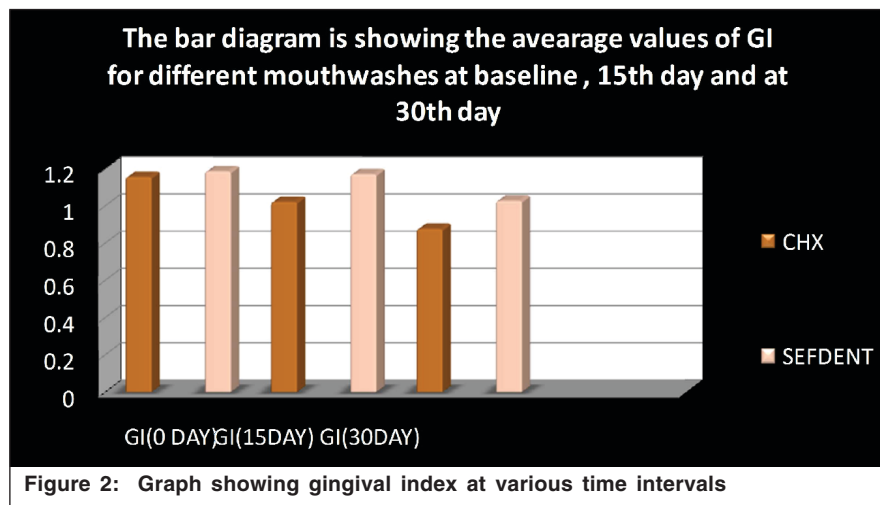


Figure 1: Graph Showing plaque index at various time intervals

Table 2: Showed analysis of gingival scores showed that both HEXIDINE and SEFDENT group showed a statistically significant reduction from baseline to 30 day

| HEXIDINE | | | |
|----------|---------------|-------------|---------|
| TIME | Mean ± SD | % REDUCTION | P VALUE |
| BASELINE | 1.154± .1156 | — | — |
| 15 DAY | 1.02± .8138 | 11.61% | < 0.05 |
| 30 DAY | .875±.0651 | 24.18% | < 0.05 |
| SEFDENT | | | |
| TIME | Mean ± SD | % REDUCTION | P VALUE |
| BASELINE | 1.184±.1331 | | |
| 15 DAY | 1.169 ±.0921 | 1.26% | < 0.05 |
| 30 DAY | 1.026 ± .1229 | 13.35% | < 0.05 |



contact time with a microorganism in order to inhibit or kill it. Chlorhexidine with a substantivity of 8-12 hours is considered highly effective (6); whereas sefdent substantivity is not yet known. On other hand, Jenkin S, Addy M that Chlorhexidine has immediate bactericidal action on plaque bacteria and plaque fungi and is among the most effective active agents to reduce and inhibit plaque accumulation. It is able to kill both gram-positive and gram-negative microbes. This could be due to the mechanism of action of chlorhexidine on bacteria, which involves the disruption of bacterial cell membrane (7).

In the past, many studies state that Chlorhexidine has the ability to reduce plaque formation & also improves the gingival status. The *SEFDENT* mouthwash used in this study is a new mouthwash with many components containing Clove oil, Sorbitol, Sol Isopropyl Myristate, Sodium Saccharin, which have antimicrobial, antifungal, antiseptic properties, thought to be helpful in reducing plaque scores over a period of time.

In a study by Serfaty R, Itic J stated clove oil has been used successfully to treat

gingivitis and hence forth reduces the gingival inflammation (8). The benefits of clove oil can be attributed to its antimicrobial, antifungal and antiseptic properties. The characteristic smell of clove oil helps removing bad breath. The germicidal properties of the oil make it very effective for relieving dental pain, sore gums and mouth ulcers and in addition claim to reduce gingival bleeding.

But we observed few patients in *SEFDENT* Group reported ulceration, and burning sensation so patient were little reluctant in using it, above all in case *HEXIDINE* Group some patients complained of staining. The result from this study claims that 0.2% Chlorhexidine is still a better mouthwash of choice as compared to others. There is need for hour to investigate other upcoming mouthwashes so as to prove their efficacy as equivalent in reducing the plaque scores and gingival inflammation.

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