Research Article

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Comparison of Effectiveness of two Different Desensitizing Mouthwash Against Hypersensitivity: A Clinical Study

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ABSTRACT

Background: To compare the effectiveness of two different desensitizing mouthwash; Hiora K containing natural ingredients, and Senquel F mouthwash in reducing dentin hypersensitivity (DH).

Materials and Methods: A study was conducted on 84 adult patients for 8 weeks suffering from hypersensitivity associated with cervical abrasion of two or more teeth anterior to the molars. Patients were divided into two toothpaste groups as follows: Group I: herbal desensitizing mouthwash containing natural ingredients, and Group II: containing potassium salt mouthwash. Using air stimulus, the sensitivity scores were recorded using Schiff Sensitivity Scale (SSS) at baseline, and after 8weeks. Statistical Analysis: One-way ANOVA test significant.

Results: Group II showed significantly better reduction in DH at all time intervals when compared with Group I.

Conclusion: Herbal Desensitizing toothpaste was found to be the most effective in the reduction of DH after a period of 8 weeks followed by herbal desensitizing mouthwash and potassium salt-containing toothpaste.

Keywords: Hiora K; dentin hypersensitivity; desensitizing toothpastes; herbal; potassium salt.

INTRODUCTION

Dentinal hypersensitivity (DH) is most common, painful oral condition gives a potential impact in day today life It develops when dentinal tubules are exposed after gingival recession or enamel loss [1,2] such as erosion or abrasion. [3,4] According to the hydrodynamic theory of DH is the transient, sharp pain of sensitivity which occurs in response to external thermal, evaporative, tactile, osmotic, or chemical stimuli to the movement of fluid within open dentinal tubules, which stimulates nerve terminals at the pulpal end of the tubule. [4-7]Various treatment modalities have been suggested which includes blocking patent dentinal tubules with occluding agents to reduce fluid movement [8,9] and inhibiting neural transmission of the pain stimulus by means of reducing pulpal nerve activity through the use of agents such as potassium ions.[9,10] There are many clinical studies proposing that toothpastes containing potassium salts can reduce sensitivity and are effective in relieving the pain of DH when used as part of a typical daily oral hygiene regimen.[11-14] Mouth rinses provide an alternative means of delivering potassium ions to the dentin-pulpal junction. Although less well studied than toothpastes, the efficacy of mouth rinses containing potassium salts (2% potassium citrate, 2.4% or 3%

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potassium nitrate [KNO3] for the relief of DH has been investigated in randomized controlled studies.[15-19] The need of present study is to compare the efficacy of effectiveness of two different desensitizing mouthwash; one being herbal desensitizing mouthwash and the other being potassium nitrate containing mouthwash.

MATERIALS AND METHODS

This clinical trial was done in a private clinical center. The sensitivity scores were recorded at baseline and 8 weeks. A total of 84 individuals were selected from the outpatient of the clinic. Inclusion criteria

• All healthy male and female subjects were20-70 years of age with at least two sensitive permanent tooth surfaces (buccal/facial aspects of incisors, canines, or pre-molars)

Exclusion criteria

• Patients who have undergone active periodontal treatment within last 6 months

Pregnant or lactating females

Deleterious habits such as smoking and/or alcohol consumption

Use of antibiotics within 6 months before the study

Systemic disease.

Patients with deep carious teeth, defective restoration, any pathological lesion, mobile teeth, cracked enamel, orthodontic appliances. Tactile sensitivity assessment: Tactile sensitivity was assessed by using a blunt probe used under slight manual pressure in the mesiodistal direction on the hypersensitive areas of the tooth.

Air blast sensitivity assessment:

Air blast sensitivity was assessed by directing a 1–2 s blast of air perpendicular to the exposed dentin onto the buccal surface of sensitive tooth from a distance of 1 cm using air component of an air–water syringe. Adjacent proximal teeth were shielded from air blast through the placement of two fingers. Sensitivity was assessed by air blast sensitivity, using SSS described as follows:

0= Subject does not respond to air stimulus

1= Subject responds to air stimulus but does not request discontinuation of stimulus

2= Subject responds to air stimulus and request discontinuation or moves from stimulus

3= Subject responds o air stimulus, considers stimulus to be painful, and requests discontinuation of the stimulus.

Patients who qualified the tactile as well as the air blast sensitivity assessment were selected and randomly assigned to the three study groups, 30 patients in each group with two teeth per patient to be considered in the study.

• Group I: Herbal desensitizing mouthwash containing suryakshara, palakya, lavanga, and triphala (HiOra-K,Himalaya Herbal Healthcare) (*n* = 42 teeth)

Group II: Desensitizing paste containing potassium salt (Senquel-F mouthwash)(n=42 teeth) The patients in each group were asked to take 10 ml of mouthwash for 1 minute and expectorated. All participants of the study were instructed to report after eight weeks for follow up.SSS was evaluated at each visit. Statistical analysis was done by One-way Anova.

RESULTS

There was a significant difference in mean for Group I which was 0.881±0.9927 ,in comparison to mean of Group II which was 1.381±1.0809,p<0.03 .(Table 1,2)

Table 1: Schiff Sensitivity Score:

SSCORE	GROUP I	GROUPII
0	20	11
1	10	12
2	9	11
3	4	8

Table 2: Comparison of Schiff sensitivity scale score

Source	SS	df	MS	F
Between treatment	5.25	1	5.25	4.8749
Within treatment	88.3095	82	1.0769	P<0.03
Total	93.5595	83		

DISCUSSION

Potassium salts, including KNO3, are the most popular substance used for the treatment of DH and act by disrupting the nerve transmission leading to sensations of pain. [11] Although the effect of potassium salts on DH has been controversial, a recent meta-analysis indicated that symptoms of DH may be eased by the use of potassium-containing toothpaste. [12,13] Mouthwashes has become accepted as a preferable delivery vehicle compared to pastes and gels due to their ease of use, and access to all areas of the mouth, and ability to circumvent the discomfort that could occur when brushing the sensitive dentin surface because the osmolality of toothpaste may increase pain sensations. [14] Furthermore, the addition of agents that have functions other than desensitization (e.g., they improve plaque status, gingivitis, the caries index, teeth whitening) could increase the clinical benefits of using the mouthwash.

In this study, herbal desensitizing mouthwash (Group II) was more effective in reducing DH than potassium nitrate-containing toothpaste (Group I). The results of study show similar statistically significant improvements in herbal desensitizing group in comparison to 3% KNO3 mouthrinse group . This finding may be attributed to the presence of natural ingredients such as suryakshara, palakya, lavanga, and triphala. Suryakshara is a naturally derived potassium nitrate which desensitizes dental nerves. Palakya (spinach) contains natural oxalates which help in the formation of phytocomplexes and occlude the exposed dentinal tubules. Lavanga (clove) and triphala control pain due to the obtundent action of eugenol. These herbs altogether could be exhibiting a synergistic effect in reducing pain due to DH.

Various treatment modalities such as laser therapy and iontophoresis are also used for the treatment of dentinal hypersensitivity but have many disadvantages such as being expensive, complex, and questionable long-term effectiveness.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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