A clinical trial to evaluate the effects of triphala as a mouthwash in comparison with chlorhexidine in chronic generalised periodontitis patient.

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**INTRODUCTION**

Periodontitis results from extension of inflammatory process initiated in gingiva to the supporting structures of tooth. Dental plaque is a microbial ecosystem mainly consisting of densely packed microbial products, microbial byproducts, insoluble glycoprotein and to some extent desquamated epithelial cells arranged in an organised intracellular matrix. These microorganisms are adherent to each other and or to surfaces as a result of dynamic balance between microbial attachment processes and mechanical forces of detachment in oral cavity. Clinical studies have shown definite relationship between dental biofilm and periodontal disease.\textsuperscript{1} Based upon this association current treatment is directed at disruption of biofilm which usually includes professional and home care mechanical methods. However it is not easy to achieve an adequate level of plaque control, efficient plaque control techniques are time consuming and require motivation and skill to be performed well. Antimicrobial agents have been employed extensively as an adjunct to mechanical cleaning in initial phase of periodontal therapy as well as in situations where mechanical cleaning is difficult.\textsuperscript{1}

Chlorhexidine has been established as a most effective chemical plaque control compound. It is cationic bisguanide with a broad spectrum antiseptic with pronounced antimicrobial effect on gram positive and negative bacteria, yeast, dermatophytes and some lipophilic viruses and also potent anti plaque agent.\textsuperscript{1} Triphala is one of the traditional ayurvedic medicine product comprised of fruits of three medicinal trees, Amalaki - Emblica officinalis, Vibhitaki – Terminalia belerica, Haritaki – Terminalia chebula.\textsuperscript{2} According to sushruta samhita in his 20\textsuperscript{th} shloka has stated that Triphala can be used as a gargling agent in dental diseases. It has antibacterial, antiseptic and anti-inflammatory properties along with many other properties.\textsuperscript{2} Ayurvedic drugs have been used since ancient times to treat diseases.
including periodontal diseases. Oral rinses made from ayurvedic medicines are used in periodontal therapy to control bleeding and reduce inflammation. The aim of the present study was to evaluate and compare the effects of Triphala as a mouthwash with Chlorhexidine in chronic generalised periodontitis.

**Material and methods:** The present study was a short term clinical trial, which included 24 patients with chronic generalised periodontitis of age group 35-55 years, reporting to out patient department of Periodontics, Navodaya Dental College, Raichur. Exclusion criteria: patients on antibiotic therapy, anti-inflammatory drugs, patients with systemic disease and who use tobacco.

If the subject met all of the inclusion and exclusion criteria an informed consent was taken. Patients were equally divided into three groups

- Group A – treated with scaling and root planing
- Group B – treated with scaling and root planing and prescribed to use Chlorhexidine mouthwash
- Group C – treated with scaling and root planing and prescribed to use Triphala as mouthwash

**Clinical parameters:**

The following clinical parameters were recorded. Turesky S, Gilmore ND, Glickman I modification of Quigley hein plaque index (1970)

Gingival index according to Loe H and Silness J (1963).

Oral hygiene index as given by John C Greene and Jack R Vermilion (1960) and Russel’s periodontal index (1956).

Method of preparation of Triphala mouthwash: Triphala is available as a churna, a finely sieved powder form. It is traditionally said to have a shelf life of 6 months. According to sarangdhara, kwatha (mouthwash or gargle) is prepared by boiling 1 part of Triphala powder with 16 parts of water and reduced to 1/8th part.

Study design: on baseline – Plaque index, Gingival index, Russel’s periodontal index and Oral hygiene index was recorded and scaling and root planning was performed. In group A, SRP was done, in group B Chlorhexidine mouthwash was prescribed as an adjunct to SRP.

In group C Triphala as a mouthwash was prescribed in adjunct to SRP.

Patients were instructed to use mouthwash twice daily. The above mentioned indices were recorded on days 7, 30 and 45 respectively.

The observations were statistically analysed using descriptive statistics, ANOVA test and General linear model.

**RESULTS** - There was no statistically significant differences between the groups at the base line. Gingival bleeding index showed significant reduction in Chlorhexidine group (p=0.028) and Triphala group (p=0.069) when compared to control group (p=0.717) at the end of 45 days. But no significant difference was noted in Chlorhexidine group when compared to Triphala group.

Plaque index showed significant reduction in Chlorhexidine group (p=0.08) and Triphala group (p=0.003) when compared to control group (p=0.410) by the end of 45 days.
Oral hygiene index showed significant reduction in Chlorhexidine (p=0.063) and Triphala group (p=0.005) when compared to control group (p=0.064). No significant reduction in Russel’s periodontal index was noted in all the three groups.

In patients who used Chlorhexidine mouthwash showed staining of their teeth but there were no staining of teeth in patients who used Triphala as mouthwash.

Oral hygiene index showed a slow increase in the value in all the groups by the end of 45 days, there was a significant difference in the values in Triphala and Chlorhexidine when compared to control group.
Gingival index showed significant reduction in values at the 7th day, but no significant difference was noted at 30th day between Triphala and Chlorhexidine group. No significant reduction was noticed in control group at 30th and 45th day. Chlorhexidine showed better reduction in gingival index when compared to Triphala at the 45th day.

**DISCUSSION**

Chlorhexidine was developed in 1940s by Empirical chemical industries, England and marketed in 1954 as an antiseptic for skin wounds. Use in dentistry was initially for presurgical disinfection of the mouth and in endodontics. Plaque inhibition by Chlorhexidine was first investigated in 1962 but the definitive study was performed by Loe and Schiott in 1970.5

Triphala is being used since ancient times to treat diseases. Triphala can be used for dental diseases as mentioned in sushrutha samhita. Chlorhexidine was selected as the test substance because it is best characterised and most effective chemical antiplaque agent. The importance of biofilm disruption prior to the initiation of Chlorhexidine regimen was investigated by Brownstein et al (1990). They compared the effects of rinsing with 0.12% Chlorhexidine gluconate in sites with and without initial prophylaxis (split mouth design) in individuals with pre established gingivitis. CHX group showed better reduction in clinical parameters than in control group, this can be explained by study done by Fabrico B et al (2007) – CHX had better reduction in GBI, plaque index in patients who where given CHX as an adjunct to oral prophylaxis than in control group. There was significant reduction in Gingival bleeding in Chlorhexidine group- this might be attributed to substantivity of Chlorhexidine within oral cavity (Kornman in 1986). In a study done by Loe H et al (1970) CHX showed significant reduction in development of dental plaque and gingivitis in subjects.7

Mehta B K et al (1993) have proved antimicrobial efficacy of Triphala. Triphala because of its Haritaki fruit, Amalaki fruit and Vibhitaki fruit components has wide Gm +ve and Gm -ve antibacterial activity and antifungal activity as studied by Inamdar et al, Vinayaga Morthy (1982), Sujata et al (1989).8,9

Herbal extracts are also potent inhibitors of pathologically elevated collagenases and hence may be used as an alternative adjunct in the management of periodontal disease. From the study done by Lee w et al (1995), poly morpho nuclear neutrophils (PMN) provide the major source of collagenases or
gelatinase that mediate connective tissue break down during inflammatory periodontal disease. 
Triphala has been shown to have inhibitory activity against mmp-9.\textsuperscript{2} 
Triphala allows suppression of collagenase activity well within the safety profile of 
toxicological studies (Sajith Abraham 2005).\textsuperscript{2} 
In addition to this property other biological activities of Triphala which are well known make it a potential 
ayurvedic drug for the treatment of periodontal disease.

In our study a statistically significant difference was noted in reduction of indices in Triphala group 
and Chlorhexidine group. These results are in accordance with the study done by southern et al\textsuperscript{10} 
(2006) who compared 0.12\% Chlorhexidine and herbal oral rinse in dental plaque induced gingivitis.

Gingival index showed significant reduction in Chlorhexidine than Triphala group and control group 
with p-0.06. This is attributable to plaque inhibition property of Chlorhexidine as said by Rolla and Melsen 
and antibacterial property of Triphala (Allan tillotson, 2001)

Both Oral hygiene index and Plaque index showed significant reduction in Triphala and 
Chlorhexidine group when compared to control group.

But no significant reduction was found in control group.

Russel’s periodontal index showed no significant reduction in all three group

**Conclusion**

Triphala can be used as a mouthwash in conjunction with scaling and root planning. Further studies are required in larger samples to show the 
long term effects of Triphala as a mouthwash.

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