Acta Scientific Dental Sciences (ISSN: 2581-4893)

Volume 8 Issue 1 January 2024

Research Article

Comparative Evaluation of Role of ORO-T Mouthwash and SMF Mouthwash as Adjunct to Scaling (Subgingival Irrigation)

Shruti Dabi[1]*, Ashish Garg[2], Aditya Singh Panwar[3], Sughosh Dabi[4], Prachi Sharma[5] and Reshma Karkera[6]

[1]*Private Parctioner, Ajmer, Rajasthan, India*

[2]*Dental Assistant, Dental Hospital York, UK*

[3]*Post Graduate Student, Suresh Gyan Vihar, Jaipur, Rajasthan, India*

[4]*Private Practioner, Ajmer, Rajasthan, India*

[5]*Assistant Professor, Department of Public Health Dentistry, Mahatma Gandhi Dental College & Hospital, Jaipur, Rajasthan.*

[6]*Professor, Faculty AJIDS, Mangalore, India*

***Corresponding Author:** Shruti Dabi, Private Parctioner, Ajmer, Rajasthan, India.

DOI: 10.31080/ASDS.2024.08.1766

Received: November 29, 2023

Published: December 21, 2023

Abstract

Aims and Background: The standard approach for managing PD-D involves the M removal of DP and tartar from the tooth surface along with diligent OHM. Nevertheless, achieving thorough MD of areas with DPP poses a significant challenge. So, the aim was to compare and evaluate the effectiveness of OT-M and SMF-M when used as adjuncts to SB-G S.

Materials and Methods: All patients underwent S and RP . Patients with PD of 5–7mm returned after 7 days and were enrolled in the study. GI, PI, BI, PPD, and CAL were assessed thereafter. We treated 120 sites. 60 sides were treated with OT-M on the upper and lower right sides of the mouth and the remaining 60 with SMF-M on the left side. On the 14th and 21st days, all patients were recalled and evaluated for the above P.

Result: Although intergroup comparison at day 14 showed a SSD between both groups, at day 21 there was NSSD between them. Conclusion: SMF-M can be used as a LDD in R of AB (TTF) because of its superior properties. But Further researches need to be done to support the findings.

Clinical significance: According to the results of our study, it is suggested that SMF-M be used in the future to replace TTF in the context of LDD.

Keywords: OT-M; SMF-M; LDD; DPP; CAL; GI; PI; BI; TFF

Introduction

Studies have also concluded that the "periodontal infection (PD-I) is initiated by specific invasive oral pathogens (OP) that colonize dental plaque (DP) biofilms on tooth surface, and HMI to inflammation plays a central role in disease pathogenesis (DP)" [1]. Studies have also concluded that "it is recognized as infectious processes that require bacterial (B) presence and a host response (HR) and are further affected and modified by other local, environmental and genetic factors" [1]. Studies have also concluded that "association of PD-I with organ systems like CVS system, endocrine system, reproductive system and respiratory system makes PDL infection a complex multiphase disease" [1]. Thus various past studies have also come to conclusion that "periodontitis (PD-IT) and PD-D are true infections of the oral cavity" [1]. Studies have also concluded that "there is an equilibrium that exists between microbial challenge and host's IR; any alteration to that with addition of other modifying factors is responsible for clinical manifestation of PDL disease" [1]. Studies alos proved that "pathogens of the subgingival microbiota can interact with host tissues even without direct tissue penetration, and the subgingival microbiota (SBG –M) accumulate on the OC to form an adherent layer of DP with the characteristics of a biofilm (B)" [1]. Thus, past studies also conclude the "OC works as a continuous source of infectious agents, and its condition often reflects progression of systemic pathologies" [1]. In addition to this, studies also concluded that "PD-I happens to serve as a bacterial reservoir that may exacerbate systemic diseases" as shown in figure 1 [1].

Studies also conclude that "treatment of periodontal disease (PD-D) routinely based on mechanical debridement (MD) of the tooth surface and appropriate and meticulous maintenance (MM) of OH" [2]. However,studies also concluded that " comprehensive MD of sites with deep periodontal pocket (DPP) is difficult to accomplish" [2]. Thus, studies concluded that "it alone may fail to eliminate the P M because of their location within the G and DT or in other areas inaccessible to periodontal instruments" [2]. Studies

have also shown that "as an adjunctive approach, systemic or local administration of antibiotics is done because of the M etiology of PDIT" [2]. Studies have thus showed "various disadvantages of the systemic antibiotic therapy (SABT), like hypersensitivity reaction, organ toxicity and development of resistant bacteria, coupled with its requirement of higher dosage to attain required GCF concentration at the target site, led to the use of local drug-delivery (LDD) system" [2].

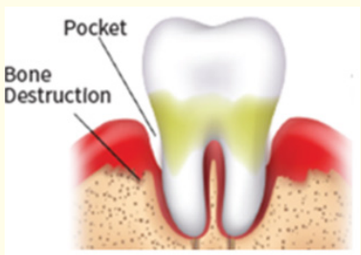

Figure 1: Periodontitis [3].

Studies have also come to conlcusion that "ayurveda system of medicine (MD) has its root in Indian subcontinent which is being globalized and practices as alternative MD in the western world" [2]. Studies have also shown that "it is typically based on complex herbal compounds, minerals, and metal substances" [2].

Hence, in our study we have evaluated turmeric for its AB properties. As we already know through various studies that "turmeric (haldi) is a rhizome of *Curcuma longa (CL)* and may be a more acceptable and viable option for the common man" [2]. Studies also showed an interest and concluded that" its structure in 1910 by Milbedzkar., *et al*. and was synthesized in 1913 by Lampe., *et al*. Studies laso concluded that " usage of C has a long history from the time China, India, and Iran used it as traditional MD, and it has been used in various forms for the treatment of many diseases such as DM, liver disease (LD), rheumatoid diseases (RD), atherosclerosis, infectious diseases (ID), and cancers etc" [2]. Stduies have also concluded that "various formulations of C in the form of powder, paste, gel, and poultice has been extensively used proving its various pleiotropic effects (PTE)" [2]. In addition, studies have also showed through their researchers its properties like anti-inflammatory, antioxidant, antimicrobial, hepatoprotective, immunostimulant, antiseptic, antimutagenic, and it also accelerates wound healing" [2]. Furthermore, studies also concluded that "cardamom possesses the following medicinal properties: antiseptic (pulmonary), antispasmodic (neuromuscular), aphrodisiac, expectorant, anthelmintic, antibacterial (variable), cephalic, cardiotonic, diuretic, emmenagogue, sialogogue and stomachic" [4]. Studies also concluded that "SMF have properties like Clove, Cardamom ,Pudina ,Tulsi ,Cinnamon and Madhuyasthi" [3]. Hence this study was planned to evaluate SMF mouthwash property.

As per the literature, there is no available in vivo study that has compared and evaluate the role of 2 different locally administrated M, "Oro-t mouthwash (OT-M) and Smf mouthwash (SMF-M) as adjunct to scaling (S) [subgingival (SB-G) irrigation (I)] for treatment of PD-D as LDD system in replacement of tetracycline fiber as an AB regime".

Aim

The goal of the study was to compare and evaluate the role of OT-M and SMF-M as adjunct to SB-G S.

Objective

- To evaluate effect of SB-GI OT-M as an adjunct to S and root planing (RP).
- To evaluate effect of SB-GI SMF-M as an adjunct to S and RP.
- To compare and evaluate effect of SB-GI OT-M and SMF-M as an adjunct to S and RP

Inclusion criteria

- "S healthy patients.
- PP depth ranging from ≥5 mm to ≤ 7mm.
- Requiring Non- surgical periodontal treatment (NSPT)".

Exclusion criteria

- "AB for past 6 months.
- Smokers/Gatka or any form of smokeless tobacco users.
- PT within past 6 months.
- Bony defect requiring surgical regenerative treatment.
- Mobility".

Materials and Method

Figure 2: Armamentarium

Material

- "Piezo-electric scalers (PES)
- OT-M
- SMF-M
- 5ml syringe with blunt cannula (C)"

Study design

- **Type Of Study:** A Comparative Split Mouth Study.
- **Sample Size:** Split mouth study in 30 patients with 120 experimental sites.

Method

Clinical evaluation

In our study we have taken total of 30 patients, from the outpatient department of Periodontology, Darshan dental college and hospital, Loyara, Udaipur diagnosed to have localized or generalized chronic periodontitis (CP) with PD of 5 to 7 mm in each quadrants of the mouth and with at least 20 remaining teeth.

Study protocol

The relevant data was recorded in a special proforma sheet. Clinical examinations was done in a dental chair, under standard conditions of light, using a mouth mirror, explorer, William's graduated (WG) PP and tweezer (T) and followed by which assessment of clinical parameters (CP) were carried out after S and RP ,which include gingival index (GI), plaque index (PI), bleeding index (BI), probing pocket depth (PPD) and clinical attachment level (CAL) at baseline ,14 days and 21 days respectively. Selected sites were randomly divided into group1 and group2 respectively.

Figure 3: Baseline Probing pocket depth after scaling and root planning.

After treating with S and RP, these patients were treated with SB-GI of OT-M in right upper and lower quadrant and SMF-M in left upper and lower quadrant in the PP of molar /pre-molar tooth region total of 120 side. All participants will be explained about the need, design of the study and its potential benefits. Informed written consent will be obtained. The study protocol was approved by the Ethics Committee.

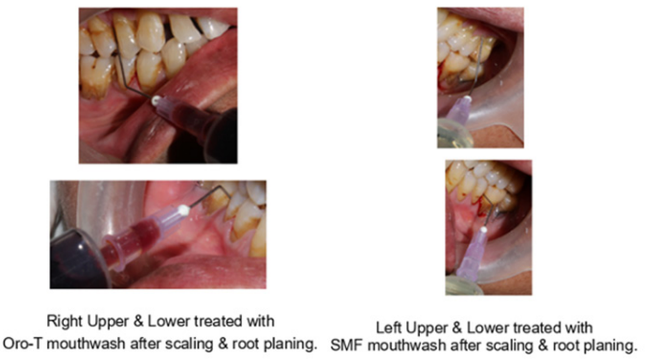

Figure 4: Intra Operative view.

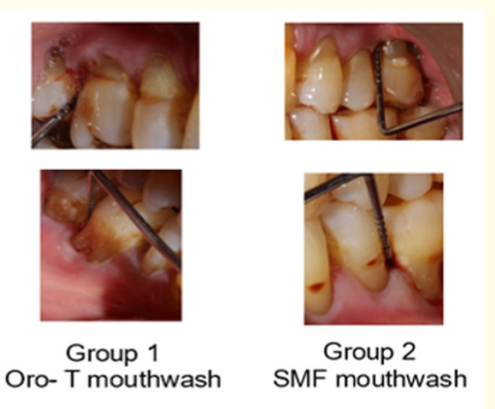

Figure 5: Day 14th After subgingival irrigation.

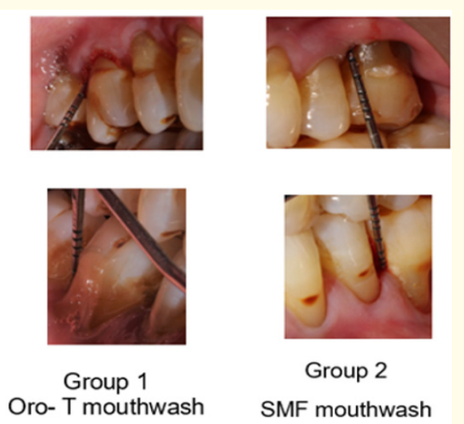

Figure 6: Day 21st After subgingival irrigation.

Result

Statistically significant difference (SSD) between BP and day 14th after site treated with OT-M and SSD between day 14th and day 21st after site treated with OT-M. SSD between BP and day 14th after site treated with SMF-M and SSD between day 14th and day 21st after site treated withSMF-M.

Although both the group showed S reduction (R) in CP and gain in CAL when treated with these MD but group 2 showed more SD in CP as compared to group 1.

- P Value for group 1 (OT-M) and group2 (SMF-M) showed SSD between the BP (sites after scaling and root planing and before treated with medicine) and day 14th and day 21st CP of both the groups (OT-M and SMF-M respectively).
- P Value was significant for Intergroup comparison at day 14th between OT-M (group1) and SMF-M (group 2).
- P Value was SNS for all the CP when intergroup comparison of group 1 and group 2 on at day 21st.

Discussion

Studies have also shown that "PD-D is a painless disease and the majority of people recognize it when it reaches its advanced stage where the prognosis becomes poor" [4]. Therefore, studies concluded that "there is a need to prevent and maintaining periodontal health (PDH)" [4]. In 2017, similar study conducted and concluded that "antimicrobial effects (AM-E) were determined against standard strains of bacteria that are involved in different stages of PD disease" [4]. Here, in-vitro tests researchers included the "determination of minimum inhibitory concentration (MIC) using broth dilution and agar diffusion" [4]. Whereas ,"in the ex vivo part of the study includes supragingival (SP-G) DP were obtained from 20 PDH adult volunteers" [4]. Researchers "found SNSD between the M" [4]. Studies showed that "the agar dilution method (ADM) showed that CHX was more effective as compared to the herbal mouthwash (HM) against standard strains of Streptococcus mutans (SM), Streptococcus sanguinis (SS), and Aggregatibacter actinomycetemcomitans (AA)" [5]. However, researchers also found " no difference between the mouthwashes for Porphyromonas (P), Pseudomonas aeruginosa (PA), and Fusobacterium nucleatum (FN)". Studies also concluded that "none of the selected M shiwed any kind of SSD from each other. Thus, studies concluded that "CHX showed higher levels of AM action than the HM against bacterial species" [5]. In 2017, another study "evaluated the efficacy of Tulasi (TU) in the treatment of OSMF patients" [6]. The study included 20 individuals, females and males of age group 20-50yrs who visited the OPD who were diagnosed clinically as having OSMF, categorized according to pindborg's classification (PB-C). The patients were asked to apply 500mg of TU MD paste (Tulasi powder mixed with glycerin) twice daily for 1month and were recalled for follow up every week for 1month. All the CP- mouth opening (MO), burning sensation (BS), pain with the lesion (PWL) and others were evaluated and recorded in specially designed proforma. Friedman test and wilcoxon signed rank test was used for statistical evaluation. SSD with P value <0.05 was noticed in BS, MO and PWL. They concluded that TU can be used as a main treatment modality in the management of patients with OSMF" [6].

In our study, we found SSD association for BP and day 14th and 14th and 21st day after site treated with OT -M . Additionally in group 2 we found SSD between BP and day 14th and 14th and 21st after site treated with SMF mouthwash . Although both the group showed SR in CP and gain in CAL when treated with these MD yet group 2 showed more SR in CP when compared to group 1. Furthermore, P Value was NSSD for all the CP when intergroup comparison of group 1 and group 2 on at day 21st.

Conclusion

Although there was NSSD between OT-M and SMF-M in all the parameter's R yet SMF-M can be used as a LDD in replacement of AB (tetracycline fibers) (TTF) because of its superior properties when compared with turmeric mouthwash. Further researches need to be done.

Clinical Significance

Although at day 14 SMF-M showed better results yet when the results of both groups were compared on the 21st day, it was determined that there was NSSD them. Both MD, as a result, have potent AB-P that enable them to efficiently treat infections and increase attachment levels, preventing the disease from progressing further. According to the results of our study, it is suggested that SMF-M be used in the future to replace (R) TTF in the context of LDD.

Bibliography

1. Saini R., *et al.* "Periodontitis, a true infection". *Journal of Global Infectious Diseases* 1.2 (2009): 149.

2. Chatterjee A., *et al.* "A comparative evaluation of the efficacy of curcumin and chlorhexidine mouthrinses on clinical inflammatory parameters of gingivitis: A double-blinded randomized controlled clinical study". *Journal of Indian Society of Periodontology* 21.2 (2017): 132.

3. Akcali AL., *et al.* "Periodontal diseases and stress: a brief review". *Journal of Oral Rehabilitation* 40.1 (2013): 60-68.

4. Rajathi AA., *et al.* "Processing and medicinal uses of cardamom and ginger-a review". *Journal of Pharmaceutical Sciences and Research* 9.11 (2017): 2117-2122.

5. Zorab SS., *et al.* "Self-Reporting Questionnaire on Gingival Bleeding Among Dental Students at University of Sulaimani 4.1 (2018).

6. Pathan MM., *et al.* "Comparative evaluation of the efficacy of a herbal mouthwash and chlorhexidine mouthwash on select periodontal pathogens: An *in vitro* and *ex vivo* study". *Journal of Indian Society of Periodontology* 21.4 (2017): 270.

7. Madhulatha G., *et al.* "Tulasi a magical herb and a boon for management of oral submucous fibrosis: a clinical study". *International Journal of Research in Medical Sciences* 5.11 (2017): 4719-4723.