

ONE STAGE VERSUS PARTIAL MOUTH DISINFECTION IN THE TREATMENT OF CHRONIC AND AGGRESSIVE PERIODONTITIS

Dr Vikas Verma
B.D.S., M.D.S.
Sr. Lecturer

Dr Amit Goel
B.D.S., M.D.S.
Senior Lecturer

Dr Ritu Bishnoi
BDS , Lecturer

Dr Nidhi Raheja
BDS , Lecturer

Dr Poonam Gupta
BDS , Lecturer

Dept. Of Periodontics, Teerthanker Mahaveer Dental College & Research Center, Moradabad, (Uttar Pradesh), India, Pin-244001

Introduction

The current concept concerning the etiology of periodontitis consider 3 groups of factors which determine whether active periodontitis will occurs in a subject-

1. Susceptible host.
2. The presence of pathogenic species.
3. Absence of so called beneficial bacteria.

The susceptibility of the host is hereditary but can be influenced by environmental factor such as smoking. Hereditary aspect seems to play a role in aggressive periodontitis. These patient respond to less favorably to conventional therapy so use of Antibiotics is advocated. The ample data is to consider the following 3 Micro-organisms as etiologic agent Actinobacillus actinomycetemcomitans, Porphyromonas gingivalis, Bacteroides forsythus. Role of beneficial bacterial on periodontitis is less obvious . Such bacteria can affect disease progression in different ways by passively occupying a niche which might otherwise be colonized by pathogens, or by limiting a pathogen's ability adhere to appropriate tissue surface or by affecting the vitality or growth of a pathogen, by affecting ability of pathogens to produce virulence factor or by degrading virulence factor produce by pathogen. e.g. S. Sanguis produce hydrogen peroxide which is lethal to Actinobacillus actinomycetemcomitans.

A standard treatment strategy for periodontal infection often consists of 4 consecutive session of scaling and root planing (per quadrant at 1-2 weeks intervals). A single course of scaling and root planing is frequently used as initial phase of the treatment because it reduce at least temporarily, the proportion of subgingival pathogenic micro-organisms. Recent microbiological studies (Quirynen et al 1996) suggested the existence of intraoral translocation (from one niche to another) of periodontal pathogens. If such a translocation occurs rapidly, a recently freshly root planed deep pocket might be recolonized by a pathogenic bacteria from remaining untreated pockets or from other intra oral niches, before a new & less pathogenic ecosystem has been established.

Several studies (Muller et al 1993) indicated,

however, that most periodontal pathogens colonize besides the periodontal pocket, other intraoral niches such as the tongue, the tonsils, the saliva & other mucuous membrane. In periodontitis patients, key pathogens such as Actinobacillus actinomycetemcomitans, Porphyromonas gingivalis, Prevotella intermedia could be detected in all aboved mentioned niches. The idea of one stage full mouth disinfection was the result of an increased consciousness of translocation of periodontal pathogens within the oral cavity.

Discussion for clinical point of view

Several large scale microbiological studies clearly indicated that most pathogenic species (with exception of spirochetes) colonize all major intraoral ecosystem (also called niche), buccal epithelium, dorsum of the tongue, the supragingival tooth surface, the periodontal pocket. Even in edentulism, both infants (kononen et al 1992) or adults (Danser et al 1994), the proportions of periodontal pathogens (except Aa & Pg) can be high. Thus role of teeth for intraoral pathogens is relative. This hypothesis is supported by observation that the successful periodontal therapy (including pocket elimination) has only limited effect on the detection frequency of pathogens on buccal mucosa &/or saliva. (Danser et al 1996)

Although the vehicle for the intraoral transportation of pathogenic species remains unidentified. Saliva, in which all species can survive, seems to play an important role (Asikainen et al 1991) The translocation of periodontal pathogens directly into a periodontal pocket through the salivary flow is however unlikely since the continuous outflow of crevicular fluid from the pocket enables this nearly impossible. Tooth brush bristles which can penetration the pocket up to 3mm could contribute to pocket penetration. Several studies (Muller et al 1989) demonstrated that tooth brushes harbor a complex microbiota including periodontal pathogens which can survive for a long period.

The idea of a one stage full mouth disinfection in the treatment of periodontitis was introduced by Quirynen et al. 1995. It involved a full mouth disinfection by scaling and root planing all the teeth within 24 hours and an extended adjunctive therapy with chlorhexidine to reduce the bacterial load from other remaining niches and to

prevent reinfection of the treated pockets. The tongue which is an important reservoir of black pigmented bacteria should also be brushed to reduce the number of bacteria on its surface. The number of bacteria in saliva should be controlled by rinsing with 0.2% chlorhexidine solution twice daily for 2 months.

Mongardini et al 1999 clearly illustrated the clinical benefit of the above described one stage full mouth disinfection especially in patient with severe form of adult periodontitis (pocket > 7mm) both the additional reduction in probing depth & gain in CAL was clinically evident. The clinical benefit of this one stage full mouth disinfection are comparable or superior to those obtained with local (slow releasing device) or systemic use of antibiotics. However preventing the risk for microbial resistance or other adverse effect is an important reason to choose the full mouth disinfection.

Discussion in relation to microbial load

Morques et al 1980 found that single session of scaling and root planing in patient with chronic periodontitis resulted in significant changes in subgingival microflora. There was decrease in proportion of motile rod for 1 week, increase in proportion of coccoid cells for 3 weeks, and decrease in proportion of spirochete for 7 weeks. Periodontal therapy is based on the reduction /elimination of these periodontal pathogens in combination with reestablishment of less anaerobic environment suitable for beneficial microbiota. Quirynen et al 1999 have shown that beneficial microbiologic effect of one stage full mouth disinfection is also illustrated by the additional reduction in motile organism especially in spirochetes & reduction/eradication of pathogenic species

Conclusion

Over all full mouth scaling and root planing in single stage seems superior to partial mouth disinfection by both clinical point of view & microbiological point of view. For disinfection of other niches other than pocket such as tongue, tonsils, mucous membrane we should prescribe 0.2% chlorhexidine rinsing twice daily for two months. We should also motivate for tongue cleaning. Additional long term studies are required to fully elucidate the role full mouth disinfection over partial mouth disinfection.

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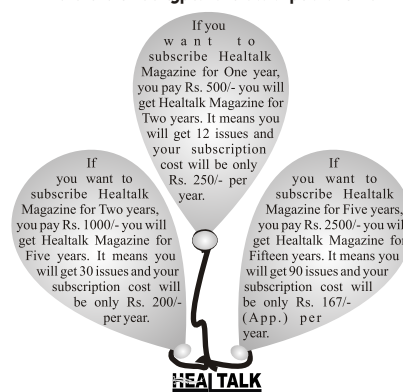
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