Salwa Akl

بسم اللّه الرحمن الرحيم

مركز الشبكات وتكنولوجيا المعلومات

قسم التوثيق الإلكتروني

Salwa Akl

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم باللّه العظيم أن المادة التي تم توثيقها وتسجيلها

علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

Salwa Akl

بعض الوثائق الأصلية تالفة
وبالرسالة صفحات لم ترد بالأصل

Comparative Evaluation Of Subgingivally Delivered Metronidazole And Chlorhexidine Gels In The Treatment Of Adult Advanced Periodontitis

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Malak Yousef Mohamed Shoukhba

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SUPERVISORS

Dr. Omaima Mohamed Hilmy Afify
Ass. Prof. Of Oral Medicine, Periodontology
Oral Diagnosis and Radiology
Faculty of Dentistry
Tanta University

Dr. Wassila Morsi
Prof. of Microbiology Department
Faculty of Medicine
Tanta University

Dr. Abd El Aziz Ahamed Said
Lecturer of Oral Medicine, Periodontology
Oral Diagnosis and Radiology
Faculty of Dentistry
Tanta University

بسم الله الرحمن الرحيم

قالوا سبحانك لا علم لنا إلا ما علمتنا
إنك أنت العليم الحكيم

صدق الله العظيم

"البقرة ٣٢"

To

My Parents,

My Husband

And My children

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CONTENTS

Introduction

Periodontitis is a destructive inflammatory disease of the supporting tissues of the teeth that is initiated by oral microflora (Page & Schroeder 1982).

The role of bacteria as an etiologic factor in periodontal disease is now generally accepted. From the early 1970 , bacterial specificity in periodontal disease became the prominent area of investigation (Tonetti 1994).

Moore (1987), detected over 300 different bacterial species in the oral cavity, of which only a limited number have been implicated as important etiological agents for the development of periodontitis.

It was found that there is a link between bacteria and specific type of periodontal infection. Facultative anaerobic coccoid bacteria has been shown to be associated with healthy periodontium (Slots 1979), while a correlation between *Porphyromonas gingivalis*, (*P.gingivalis*), *Prevotella intermedia* (*P.intermedia*) *Eikenella corrodens* (*E.corrodens*) , *Campylobacter rectus* (*C.rectus*), *Selenomonas* species, Bacteroides species and *Spirochetes* with adult periodontitis or refractory periodontitis were detected (Dzink et al 1988). Furthermore *Actinobacillus actinomycetemcomitans*, (*A.actinomycetemcomitions*) *Capnocytophaga* species, *P.intermedia* and *E-corrodens* were associated with rapidly progressive periodontitis (Delaney and kornman 1987).

The ultimate goal of periodontal therapy is not only to preserve as many teeth as possible by slowing down, arresting, reversing the periodontal destruction and preventing the recurrence of the disease (Lindhe et al 1987). Hence , new treatment strategies aim primarily at the

suppression or elimination of specific periodontal pathogens. These strategies are based on systemic administration or local application of antimicrobial agents (Slots & Rams 1990).

Several reports have indicated that systemically administrated broad-spectrum antibiotics such as tetracyclines, minocyclines, amoxycilllines may be effective adjuncts in the treatment of periodontitis (Slots et al 1979 & Genco 1981). Systemic administration of antibiotics results in changes in plaque flora, slows bone loss and also eliminates the bacteria that can not be removed by scaling and root planing (SRP), including these bacteria that have the potential to penetrate into the tissue or root surface (Kornman and Karl 1982, Christersson et al 1985).

Unfortunately, it has been pointed out that the dose and the treatment period for systemic administration of antibiotics are limited due to the risk of inducing bacterial resistance, distortion of the commensal flora that allow other bacteria or fungi to colonize, gastro-intestinal problems and inability to achieve high gingival crevicular fluid concentration (Walker 1996) .

Therefore, it would be desirable to employ a pharmaceutical therapy specifically active against the periopathogenic anaerobic microflora instead of using broad-spectrum antibiotics (Klinge et al 1992).

Certain local delivery systems for administering the antimicrobial agents directly into the periodontal pockets have been used to evaluate their ability to prolong or to amplify the effect of mechanical treatment, and sometimes to facilitate it. Among these agents are tetracycline,

metronidazole and bisguanide antiseptic chlorhexidine (Bollen and Quirynen 1996).

Vehicles for local delivery of chemotherapeutic agents include dentifrices, mouth rinses, chewing gum, and slow-release devices (Carranza 1996). The most widely tested system, monolithic tetracycline-containing fibers, has shown significant clinical benefits when used alone as compared to no subgingival therapy (Kornman 1993). Others have incorporated various agents including chlorhexidine, amine-fluoride and metronidazole into simple gels to be placed subgingivally (Ooster waal et al 1991 , Pedrazzoli et al 1992).

Chlorhexidine is an antimicrobial agent. It is a cationic bisguanide with broad antibacterial activity. It belongs to the bisguanide compounds which are the second generation anti-plaque agents as they show considerable substantivety, so that its detection in saliva is still possible 24 hours after its application (Kornman 1986). It can attach to the negatively charged cell membrane and cause a cell leak. It also prevents bacteria attaching to each other, or to the tooth surface (Bonesvoll and Gjermo 1978).

Several side effects , such as extrinsic staining , taste alteration and reversible mucosal ulceration are often reported (Lang and Breex 1986). Long-term microbiological studies did not demonstrate the development of resistant strains (Newman et al 1990).

The modes of delivery of chlorhexidine are mouth rinses (Lang and Grossman 1981), gels (Addy and Bates 1977), acrylic strips and dialysis tubing (Addy et al 1982).

Metronidazole is a strong bactericidal agent with broad - spectrum activity against strictly anaerobic bacteria and protozoa (Sutter et al 1983). It act through the inhibition of the replication and transcription of the bacterial DNA (Bollen and Quiryner. 1996).

Metronidazole was also found to be effective in the treatment of chronic periodontal disease due to its high level concentration in saliva and inflammatory exudate (Shinn, 1962).

Systemic use of metronidazole can resort in different side - effects such as gastro-intestinal discomfort, metallic taste, vertigo and insomnia. The possibility of decreasing these side-effects, could be achieved by local application of metronidazole through delivery devices such as acrylic strips, gels, dialysis tubing, and subgingival displacement pressure packs (Newman et al 1984).

The present study was designed to evaluate the clinical and microbiological effect of the newly developed metronidazole 25% and chlorhexidine 1% dental gels as adjunctive treatments of adult severe periodontitis.