Combination therapy works to treat periodontitis

Toxins associated with oral bacterial biofilm trigger an inflammatory response that destroys connective tissue and bone. For years clinicians and researchers have focused their attention on the bacteria and toxins that trigger the disease. More recently, they are looking for ways to modulate the immune response to prevent destruction of the connective tissue and bone.

A large, multicenter study was undertaken to measure the effects of combining Atridox, a locally applied antimicrobial and a systemic immune system modulator, low dose doxycycline. This study was carried out at six university dental school clinics including a total of 171 patients. All the patients received thorough clinical examinations followed by scaling and root planing completed in a maximum of two hours. The test group of patients then received locally applied Atridox in pockets 5mm or deeper. The control group received SRP alone. Both groups were given two bottles of pills, marked for “AM” and “PM.” The test group received 20mg doxycycline and the control group was given a placebo. Both groups were instructed to take one pill in the morning and one in the evening.

All patients saw the dental hygienist at three months for review of oral hygiene and SRP in any sites still measuring 5mm or more. Test subjects received Atridox in any 5mm pockets.

Findings at three and six months showed significantly greater healing in the group receiving the combined therapy. At the end of the study, three times as many patients in the combination therapy group had no measurements 5mm or deeper. This healing occurred much quicker in the test group as compared to healing in the control group.

Clinical Implications: Using low dose doxycycline plus Atridox in combination with scaling and root planing and three-month dental hygiene visits results in significant reductions in probing depth, gingival inflammation and bleeding.


Those who ate yogurt had less periodontal disease

A few studies have shown that a low intake of dairy products and Vitamin C are associated with severe attachment loss. These studies did not distinguish between calcium and lactic acid as the ingredient that made the difference.

Researchers evaluated the responses of nearly 1,000 people in the 1998 health examination study of people living in the town of Hisayama, in Southern Japan. The periodontal exam consisted of data collection in two quadrants in each person. Dairy intake was categorized into four groups: milk products, cheese, lactic acid foods (yogurt and lactic acid drinks), and other (skim milk and coffee whitener).

Other contributing factors were also recorded including age, gender, smoking, alcohol intake, blood pressure, body mass index, blood glucose, and cholesterol levels. Considering all the factors, lactic acid foods correlated significantly with periodontal health, especially in non-smokers. Milk did not have a significant effect on periodontal health.

Lactic acid products contain live lactic acid bacteria or probiotics that are considered to exert health benefits beyond inherent nutrition. Lactobacillus has been shown to suppress the growth of periodontal pathogen in the laboratory. The study authors present the hypothesis that regular consumption of lactic acid foods will control the overgrowth of periodontal pathogens.

Clinical Implications: These results do not imply that eating yogurt will prevent periodontal disease, however further studies may confirm a causal linkage.

There is a new concept in dentistry, the oral health-related quality of life (OHRQoL) concept. Oral health influences things like biting, chewing, speaking, smiling and the quality of life in general. Studies have reported the relationships between the OHRQoL and dentures, orthodontics and caries. One study demonstrated the impact of periodontal health on the quality of life.

This is the first study to measure smiling as it relates to periodontal health. Researchers at the University of Michigan, graduate periodontal clinic recruited 21 volunteers to participate in this study in exchange for free parking. They measured various aspects of smiling, including width of the smile, mouth opening, number of teeth showing and covering the mouth when smiling. Subjects were individually shown a six-minute clip from the TV sitcom *Seinfeld*. As they watched, a camera mounted on the TV captured their response to the humor. The film recording of the patient’s face was started five seconds before the funny part and continued for two minutes and 30 seconds. It was transferred to DVD and evaluated by two of the researchers to determine aspects of the smile at 30 specific time points in the recording.

Subjects answered six written questions about how they felt about their teeth and smile. Their clinicians provided a subjective evaluation of their periodontal health and clinic records were also evaluated.

Subjects with probing depths of 4-6mm didn’t open their mouths as wide when smiling and covered their mouths more often than those with shallower probing depths. Clinical indicators of periodontal disease also correlated with smiling as well as the subjective evaluation of the periodontal graduate student treating the patient. Those with more indicators of disease smiled less broadly, showed fewer teeth and tended to cover their mouths when smiling.

Clinical Implications: Periodontal disease influences how people feel about themselves, how broad they smile and their general quality of life.


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**Multidrug-resistant bacteria found in the oral cavity**

Patients usually receive periodontal treatment prior to radiation and bone marrow or cord blood transplants for leukemia, to prevent further oral infections. In this particular case in Japan, a 53-year-old woman with leukemia was too sick to receive periodontal treatment prior to a cord blood transplant. Forty days prior to the transplant, she received an oral exam and was diagnosed with mild, chronic periodontitis with inflamed tissue and generalized bleeding. Due to blood cell counts, scaling and root planing could not be done due to the potential for bleeding. Even basic oral hygiene was difficult due to the bleeding. To control the oral bacteria, she received daily subgingival irrigation with 0.2 percent povidone iodine and weekly applications of two percent minocycline slow-releasing gel. The patient had an elevated temperature and the gingival tissues became hypertropic during the next couple of weeks.

Two weeks before the cord blood transplant was scheduled, full body irradiation was completed. This treatment eliminated the leukemic cells and the white blood cell count was zero, and the gingival hypertrophy was reversed. Probing depths remained the same.

Two days prior to the cord blood transplant, *Stenotrophomonas maltophilia*, an opportunistic bacteria was detected in the phlegm. One week after the cord blood transplant, white patches appeared on the gingiva, also with the opportunistic bacteria present. Due to a high fever and elevated CRP levels, many different antibiotics were used over the next two-weeks, at which time the patient died.

Frequent irrigation and local application of antibiotics to the periodontal tissues were ineffective against this opportunistic bacteria. The persistent gingival infection provided an environment for the bacteria to survive.

Clinical Implications: Untreated periodontal disease will provide a protected area for drug-resistant, opportunistic bacteria in severely medically compromised patients.


**Less smiling for those with periodontal disease**

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Down Syndrome, a chromosomal disorder resulting in an extra copy of chromosome 21 (trisomy 21) occurs in one out of 600-800 births. Adults with Down Syndrome often have moderate to advanced periodontal disease.

Researchers at the University of Hong Kong tested a new treatment protocol to achieve better oral health for patients with Down Syndrome and periodontal disease. Study subjects were recruited from the Down Syndrome Association of Hong Kong and from the patient pool at Prince Philip Dental Hospital in Hong Kong. A group of 21 adults (14 males and seven females), with an average age of 25 years, participated in the study. All had probing depths of 5mm or more.

Scaling and root planing under local anesthesia was completed in two to four appointments for each person. They were all instructed in toothbrushing and interdental cleaning and given a one percent chlorhexidine gel to replace toothpaste and a 0.2 percent chlorhexidine rinse and instructed to use both twice daily. They were seen monthly for dental hygiene visits, reinforcing oral hygiene and to remove the chlorhexidine stain.

These patients with Down Syndrome did as well with this treatment routine as periodontal patients without Down Syndrome. Plaque scores were reduced from 84 percent to 24 percent and bleeding scores were reduced from 81 percent to 30 percent. Pocket depths were reduced from an average of 3.2mm to 1.8mm and overall, there was a gain in clinical attachment of more than half a millimeter.

Clinical Implications: Consider seeing patients who have both Down Syndrome and periodontal disease every month for dental hygiene care and to reinforce oral hygiene. Chlorhexidine one percent gel is not yet available in the United States, so other non-foaming antimicrobial products should be considered.


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Dental floss comparison

Only a few studies have been published comparing various types of dental floss, most showing no differences between them. Automated, battery powered flossers are reported to be comparable to various types of finger floss.

Researchers at the University of Texas Health Sciences Center at San Antonio Dental School and from the Procter & Gamble (P&G) Health Care Research Center in Ohio compared four types of floss to determine superiority in plaque removal. Twenty-five patients at the dental school in San Antonio participated in this cross over study, allowing each person to test each of the four flosses. The tests were single sessions to remove overnight plaque accumulation. The subjects rinsed with disclosing solution, plaque scores were measured and then they brushed with toothpaste for one minute under supervision of a dental hygienist. They again rinsed with disclosing solution, plaque scores were recorded and they were given an assigned floss to use under supervision. One more round of disclosing and plaque scores and they had completed one of the four tests. They returned at intervals of several days to repeat the trial with the other flosses.

The flosses included in the study were Glide Comfort Plus shred-resistant floss, Reach unwaxed floss, Reach Clean Burst woven floss, and the Oral-B Hummingbird powered flosser by P&G.

All of the flosses were more effective than brushing alone for interdental plaque removal. The Hummingbird powered flosser removed more plaque than Glide or Reach Clean Burst, but was not significantly better than Reach unwaxed floss.

Clinical Implications: Despite similar efficacy of the four tested flosses, patient compliance is the key to success with interdental cleaning. Patient preference for ease of use and general comfort will determine the floss of choice.