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Perio Reports provides easy-to-read research summaries on topics of specific interest to clinicians.
Perio Reports research summaries will be included in each issue to keep you on the cutting edge of dental hygiene science.

SRP Beneficial for Those with Type 2 Diabetes

There is a two-way relationship between diabetes and periodontal disease. Uncontrolled diabetes is a risk factor for periodontitis and untreated periodontitis will make controlling diabetes more difficult. Based on these findings, periodontal treatment should reduce elevated glycemic levels, however studies show both a benefit and no benefit.

Researchers at the University of Athens in Greece monitored a group of 60 patients with both Type 2 diabetes and moderate to severe periodontitis for six months. Patients were evaluated at one, three and six months for periodontal health and blood was drawn for glycosylated hemoglobin (AIC) levels.

Half the group received scaling and root planing (SRP) at baseline and the other half was treated at the end of the study. All subjects were given oral hygiene instructions and the control group received only supragingival plaque and calculus removal.

Bleeding on probing was reduced 38 percent in the test group compared to four percent in the control group. All the periodontal indices were significantly reduced for the group receiving SRP compared to controls.

A very slight reduction in AIC levels was observed in the control group compared to a significant reduction in the SRP group. A reduction of 0.72 percent was seen in the SRP group compared to 0.13 percent in the control group.

Clinical Implications: The primary reason to complete periodontal treatment is to improve oral health. For patients who also have Type 2 diabetes, SRP might also provide a favorable effect on glycemic control.


The Use of Caries-preventive Agents

Caries risk assessment protocols suggest the use of in-office fluorides, sealants, prescription and non-prescription fluorides, chlorhexidine rinses, and sugarless or xylitol gums as techniques to prevent caries. Several things keep clinicians from using and recommending these agents for patients, including lack of knowledge of the value, lack of financial reimbursement, prevention philosophy, patient pools and overall caries risk. A written survey was sent to members of the Dental Practice-Based Research Network (DPBRN) to determine use of caries preventive agents. The DPBRN includes three areas of private and public health practices in Alabama/Mississippi, Florida/Georgia and Denmark/Norway/Sweden SK; and two large group practices networks in Minnesota – Health Partners and PDA - Kaiser Permanante.

Surveys were sent to 932 network practices with 509 usable surveys returned from 419 male and 90 female practitioners with 98 percent being in general practice. Questions were asked about preventive services and recommendations for patients six to 18 years of age.

Use of caries risk assessment by DPBRN practices was reported in 75 percent. In-office fluoride treatments were used most often by 82 percent of practices, followed by sealants in 69 percent. Sugarless or xylitol chewing gum was recommended by 36 percent of practices, with non-prescription fluoride at 32 percent and prescription fluoride at 21 percent. The least recommended preventive agent was at home chlorhexidine.

Clinical Implications: Preventive measures are used, but perhaps not as widely or as often as they could be to reduce the current level of caries in children.

Chlorhexidine (CHX) is the gold standard for effective control of oral bacteria. Various concentrations are available, some with and some without alcohol.

Researchers at the University of Zürich in Switzerland evaluated a new formulation of CHX called Parodentosan, a 0.05 percent CHX rinse containing sage, menthol, myrrh and 15 percent ethanol. They compared it to three control solutions, CHX 0.05 percent with 15 percent alcohol, CHX 0.2 percent with 15 percent alcohol and 0.2 percent without alcohol.

Two laboratory tests were done, the first evaluated effects on bacterial biofilm and the second measured staining potential on both tooth and restorative surfaces. Hydroxyapatite discs were used to grow an oral biofilm. The discs were then exposed to test and control solutions at six time points within 48 hours. The biofilm-covered discs were then incubated and harvested at 64 hours.

Bovine enamel and dentin samples were used in the staining test, plus micro-filled and non-filled composites and a glass ceramic material. The test materials were bathed in human saliva first, then rinsed with de-ionized water, followed by the CHX rinses. Several CHX rinses were performed, with water between.

The control CHX solutions were all effective in reducing biofilm growth by six log steps or almost completely. CHX plus essential oils was less effective, reducing biofilm formation by three log steps.

All of the test and control CHX solutions produced stains, with the most pronounced stain on dentin followed by enamel and the restorative materials.

Clinical Implications: Attempts to reduce CHX staining reduced effectiveness of the product.

Hyaluronic acid, also known as hyaluronan, is a polysaccharide with a high molecular weight. It is a binding agent for connective tissue, providing stability and elasticity. Hyaluronic acid is involved in the early stages of wound healing, enhances tissue regeneration and is involved with bone regeneration. New information suggests it has anti-inflammatory and antibacterial effects by seeking and destroying MMPs and prostaglandins, important inflammatory mediators. Its antioxidant actions make it a good choice for the treatment of osteoarthritis and rheumatoid arthritis.

Researchers at SDM College of Dental Sciences and Hospital in Karnataka, India compared a 0.025 percent hyaluronic acid mouthrinse (Gengigel, made in Italy) to a 0.2 percent chlorhexidine (CHX) rinse and a flavored water control. Gengigel also contains xylitol, which reduces bacterial plaque levels.

In laboratory studies, the CHX was the most effective in killing Aa, Pg and Pi. Gengigel was effective against Aa and Pi, but not Pg. The water control had no effect against any of the bacteria.

Part II of the research was a four-day mouthrinse study with 45 dental student volunteers. After baseline plaque and bleeding scores, all deposits were removed to establish plaque-free mouths. Students were randomly assigned to groups instructed to refrain from all oral hygiene and gum chewing and instead rinse twice daily with their assigned mouthrinse.

Those using the water control had significantly more plaque than the CHX and Gengigel rinse groups. Bleeding scores before and after were similar between all groups.

Clinical Implications: Although not available in the U.S. at this time, we might one day have a hyaluronic acid mouthrinse.


Licorice Lollipops Reduce Strep Mutans in High-risk Kids

High levels of Strep mutans in plaque and saliva predict current and future caries. Interventions that reduce the level of Strep mutans are needed to effectively prevent caries. Licorice root extract has the potential to kill Strep mutans. An extract of the licorice root is now used in candies for children to prevent tooth decay. Researchers at the University of Michigan in Ann Arbor carried out a pilot study to determine if lollipops containing licorice root extract could reduce Strep mutans levels in preschool children.

A total of 66 children two to five years of age enrolled in a Head Start Program, participated in the study. Strep mutans levels were determined at baseline with saliva samples identifying 12 low, 37 moderate and 17 high-risk children. Lollipops were provided twice daily for three weeks, under supervision of classroom teaching staff. The children sat at tables or in story circles to ensure their safety while consuming the lollipops. Educational material and suggested activities were provided to the teaching staff. Salivary testing was repeated prior to lollipops on days 7, 9, 11, 14, 18, 21, 25 and weekly for nine more weeks.

Strep mutans levels were reduced most significantly for the high-risk children, bringing them to a moderate level of risk during the study. Strep mutans reductions were measured out to 22 days after the study ended, at which time the Strep mutans levels began to rebound.

Clinical Implications: These findings suggest a simple effective caries-prevention approach that should be investigated further with randomized controlled trials.