The 87th General session of the IADR was held in Miami, Florida in March 2009. There were numerous abstracts in a variety of subject areas, and here are a few of the highlights, by no means exhaustive or conclusive. For more information, visit http://www.iadr.org.

Regarding biofilm

'Influence Of Cola's Type And Dental Plaque On Enamel Erosion' showed that the light cola drink is less erosive than the regular one and the presence of dental plaque diminished the erosive effect of both types of cola drink. Another study suggested that the presence of dental plaque can decrease the acid attack of an erosive drink and the association of erosive and cariogenic challenges showed less subsurface demineralization when compared with cariogenic challenge only. In 'Evaluation Of Local Vs. Systemic Antibiotic Administration In Dental Biofilms', antibiotics are most effective against young biofilms. Doxycycline administered at locally achievable concentrations was more effective in inhibiting biofilm formation than systemic dosages. 'Alterations In Oral Microecology Following Mechanical Plaque Control' showed that while pretreatment microbial samples from each oral ecological niche contained large numbers of cultivable anaerobic bacteria, mechanical plaque control with a microbead-containing dentifrice reduced bacterial numbers in both dental plaque and other oral ecological niches. 'Antimicrobial Effects Of Several Herbal Extracts On Dental Plaque Streptococci' reported that among the extracts evaluated in the study, alcoholic extract of Melissa officinalis demonstrated the highest antibacterial effect. The essence of Magnolia officinalis also possesses a significant antibacterial property, and a pleasant fragrance is an additional advantage for both extracts.

Regarding bisphosphonates

'Effects Of Bisphosphonates on SOCS3 (suppressor of cytokine signaling)' discussed that the symptoms of bisphosphonateassociated osteonecrosis of the jaw consist of pain, bone exposure, soft-tissue swelling and infection, which may lead to inflammation and complement activation. These effects may be because of the ability of these compounds to modulate levels of pro-inflammatory cytokines, such as IL-1 α , IL- β , IL-6 and TNF- α in immune cells (monocytes and macrophages), osteoclasts and osteoblasts. The suppressor of cytokine signalling (SOCS) proteins is rapidly induced by inflammatory cytokines and SOCS3, in particular, serves as a regulator for cytokine signalling pathways. The data suggest an additional mechanism for bisphosphonate-induced cellular immune responses by enhancing the production of macrophage-derived TNF- α and attenuating an important negative regulatory signal of cytokine-mediated inflammation. In 'Bisphosphonates Modulate Complement Receptors on Macrophages' authors discussed how bisphosphonates make up a drug class useful in the treatment of osteoporosis, hypercalcaemia of malignancy and Paget's disease. Recent reports suggest that intravenous administration of bisphosphonates can be linked to the development of osteonecreosis of the jaw. Combined with the everpresent presence of bacteria in the mouth, these compounds can promote infection, inflammation and subsequent production of C3a and C5a, effector molecules of the complement system. Following bacterial exposure, these activation products modulate pro-inflammatory cytokine production by macrophages. They found that the differential effects of bisphosphonates on complement receptor expression suggesting an additional mechanism for bisphosphonate actions via effects on the innate immune system. In addition, these effects may be mediated preferentially through C5aR. 'Bisphosphonates Upregulate HMGB! and RAGE' found differential regulation of HMGB1 and RAGE expression by clodronate and a third-generation bisphosphonate, ibandronate. Because HMGB1 has potential as a diagnostic marker for inflammation, increased levels may serve as an *indicator* for bisphosphonate-induced injury.

Regarding saliva and saliva tests

Patients' salivary characteristics (flow-rate, pH and buffering capacity) may provide information about future caries risk. Prior to implementation of tests measuring salivary characteristics in a cohort study on caries risk assessment, a feasibility and inter-examiner reliability study was conducted with patient populations representative of the *practice-based network*. The objective was to evaluate the feasibility (time required for completion) of six tests measuring salivary characteristics and the inter-examiner reliability of four of these tests among dental personnel in practice-based settings. In four dental practices, three salivary tests had an acceptable performance, while in the stimulated buffering capacity test, the lower reliability may have been due to ambiguity in colour interpretation of

the buffering strip test pads with three different acid challenges. The buffering capacity test lacks the comparable standardized colour guide used for pH tests. It was demonstrated that these six tests are feasible to conduct in a practice-based setting in terms of time and personnel required, reliability and patient acceptance.

Regarding the oral-systemic link

'Dental Plaque as a Risk Factor for Coronary Heart Disease' used the Experimental Gingivitis Model to determine the effect of dental plaque accumulation on systemic markers of inflammation that are associated with coronary heart disease risk. They also addressed whether a gender/racial disparity in the systemic inflammatory responses to dental plaque exists. They found that in young healthy adults, accumulation of dental plaque elicited systemic inflammatory responses, some of which are with potential atherogenic consequences. These responses differed between individuals and were dependent upon gender/race.

The use of oral fluids in biodiagnostic strategies for acute coronary syndrome (ACS) has been studied. 'Salivary Biomarker Levels in Myocardial Infarction: Gender and Kinetic Differences' investigated the contributions of gender, fluid type and kinetics of analyte levels in relation to salivary biomarker profiles of patients who suffered from ACS. The findings suggest that salivary samples could be used to detect cardiac biomarkers of ACS, although levels varied by the time after MI, gender and type of fluid.

'Periodontal Therapy Alters Vascular Endothelial Cell Expression Profiles' dissected mechanisms underlying the positive modulation of systemic inflammation achieved by periodontal therapy. They utilized a new, minimally invasive endothelial sampling and whole-genome expression profiling method to investigate differences in EC gene expression both cross-sectionally and longitudinally in this pilot study. It provided preliminary evidence that (i) periodontal infections exert pro-atherogenic effects on vascular endothelial cells and (ii) periodontal therapy has a direct, anti-atherogenic effect on this cell population. In the Turkish study 'Circulating Antibody Levels Against PAMPs of Periodontopathogens Increase Cardiovascular Risk', the authors stated that the background mechanisms explaining how periodontitis could increase the risk for cardiovascular diseases are still poorly known. The hypothesis of the study is that levels of circulating antibodies against major surface components of Gram-negative periodontal bacteria relate to periodontal status and present a specific marker of host's systemic recognition of periodontitis. Accordingly, antibody levels against specified bacterial components could be used to estimate the contribution of periodontitis to cardiovascular risk. They found that IgG levels to components of periodontal pathogens may represent an additional tool for evaluating host's specific reactivity to the infectious insult in periodontitis. Whether the targets, the conserved pathogenassociated molecular patterns studied, were membrane bound, free soluble and/or complexed needs further clarification.

Regarding xylitol

'Xylitol-based candies/lozenges: What is the evidence for caries-preventive effects?' revealed results of a systematic review on published data with the aim of assessing the caries-preventive effect of xylitol-based candies/lozenges consumption. To be eligible for the review, the studies had to present the following characteristics: (i) to compare caries progression in subjects who did and who did not consume candies or lozenges containing xylitol during a minimum of 1 year follow-up and (ii) to provide concurrent comparisons of % of caries progression according to WHO criteria. The results found that the initial search identified 126 references. Four studies met the initial eligibility criteria, but one was excluded after thorough analysis. Two more articles were selected through hand searching, but they were excluded due to the presence of chewing gum in the experimental group. The results from the selected studies indicated that although the use of xylitol-based candies/lozenges reduces the caries increment, its effect, specifically on approximal caries, is not effective. Nevertheless, these findings are not supported by strong evidence. The systematic review clearly demonstrates the need for well-designed randomized clinical studies with adequate control groups and high compliance of the subjects.

'School-based Xylitol Gummy Bear for Caries Prevention Trial: Baseline Findings' attempted to determine if habitual xylitol gummy bear (X-GB) consumption by school children will reduce dental caries in permanent teeth beyond accepted preventive modalities. They reported study implementation and baseline findings for 2007–2008 student cohort. This double-blind placebo-controlled group-randomized trial will enrol 24 Kindergarten classrooms. Baseline dental examinations were conducted in school using the ICDAS caries assessment protocol. Oral health behaviour, dental access and child's diet were collected through caregiver questionnaire. All children received oral health education and fluoride varnish. Study implementation was successful, and most parents allowed their child to participate. Children complied with daily GB consumption. Children suffered higher caries rate than national average.

Regarding vitamin D and calcium

'Bone Active Periodontitis Treatments: Effects of Vitamin D and Calcium' sought to determine the extent to which measurements of periodontal disease vary between two groups of patients who do and do not take vitamin D and calcium oral supplementation. Based on multiple clinical and radiometric variables, they found a trend towards better periodontal health in subjects who took calcium and vitamin D supplements relative to subjects not taking supplements. These preliminary, observational data are consistent with the notion that calcium and vitamin D supplementation may be helpful in the management of periodontal disease patients. The 'New Signature Of Osseointegration: Does Vitamin D Deficiency Change Expression Profiles?' reviewed how vitamin D deficiency has been considered a systemic risk factor for reduced bone mineral density, osteoporosis and impaired osseointegration. They hypothesized that vitamin D deficiency alters the expression of genes that are critical for osseointegration in this rat study. They concluded that peri-implant healing revealed a different gene expression signature compared with bone healing, and vitamin D deficiency attenuated their expression. These genes were found in five systems. The significantly affected genes may be involved in resolution process of inflammatory reactions and bone remodelling, and may play an essential role in the establishment of osseointegration.

dent practice. The aims of this study were to identify these trends in North America and to suggest reasons behind these changes through a literature review and analysis of available data. While the number of dentists has decreased by 23%, the number of hygienists has increased by 20%. This has caused a shift in the ratios of population to active hygienists, population to active dentists and active dentists to hygienists, for the first time. The number of dental hygienists is expected to grow by 30% during the next 8 years in North America. Preliminary analysis suggests that this increase is supported by (i) increase in dental hygiene education programmes; (ii) increase in professional autonomy and self-regulating power and (iii) growing demand for dental hygiene services and access to oral care services. At present, cited as a move towards increase access to dental care, the number of independent dental hygiene practices has seen a slight increase. The conclusion reached is that the demand in dental hygiene services in conjunction with the need to increase access to care is the driving force behind the current trends in the dental hygiene profession and legislative changes for independent practice. Further studies are needed to assess the readiness of the public and healthcare administrators to accept dental hygienists as primary healthcare

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providers.

Regarding dental hygiene

'Independent Dental Hygiene Practice in North America' revealed how the profession of dental hygiene has undergone significant degrees of demographic, economic and regulatory changes, including the move towards unsupervised indepenMaria Perno Goldie Seminars for Women's Health 155 Normandy Court San Carlos 94070 CA USA E-mail: mariaperno1@attbi.com Copyright of International Journal of Dental Hygiene is the property of Blackwell Publishing Limited and its content may not be copied or emailed to multiple sites or posted to a listserv without the copyright holder's express written permission. However, users may print, download, or email articles for individual use.