DHS gathers over 270 dental professionals from MEA region during Dubai Dental Week

By Dental Tribune MEA / CAPPmea

DUBAI, UAE: Dental Hygienist Seminar was organized as a new partnership between CAPP and Colgate Oral Care Academy on 05 November 2016 at Jumeirah Beach Hotel in Dubai. The event was organized as part of the 8th Dental Facial Cosmetic Int’l Conference on 04-05 November 2016 under the constantly expanding umbrella “Dubai Dental Week” - November edition which gathered over 2,500 dental professionals from around the world.

Dubai Dental Week – November edition incorporated several continuing dental education events organized by CAPP. Over 15 multidisciplinary hands-on courses, 2-day Conference & Exhibition and the Dental Hygienist Seminar all took place between 01-07 November 2016 at Jumeirah Beach Hotel with over 49 CME attainable from local health authorities as well as ADA CERP CE credits as CAPP is an ADA CERP Recognized Provider of continuing education.

During 04-05 November 2016, The Jumeirah Beach Hotel in Dubai was enlightened by the positive energy of the dental experts who came here, for brightening and modernizing their independent dental practices during the two days of conference and exhibition. Its stunning and inspiring structure was the main location where professionalism meets quality in a spectacular way.

Colgate was the title sponsor of the Dental Hygienist Seminar which took place on 05 November 2016 and will be remembered as remarkable for all dental hygienists from MEA region, Pakistan, India and several other countries who were treated to a lineup of interesting lectures. The event was organized as a joint partnership between CAPP and Colgate Oral Care Academy with the support of the International Federation for Dental Hygienists (IFDH). It was designed to increase the level of enlightenment of all passionate dental professionals. Dental virtuosos from around the world featured throughout the day including:

- Mrs. Robyn Watson, IFDH, Australia (President of the International Federation of Dental Hygienists)
- Dr. George Sanoop, UAE (Dental Faculty Higher Colleges of Technology, Dubai & Sharjah Women’s College)

Theme: “Dental Hygiene - Challenges & Opportunities for the dental professional”

Dental Hygienist Seminar
05 November 2016

Title Sponsor
Colgate

In Partnership with
International Federation of Dental Hygienists

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November-December 2016 | No. 6, Vol. 6
isms may increase their virulence and make it all the more important to eradicate it in a timely or proactive manner. Conventional treatment modalities have been concerns regarding extrinsic periodontal therapy. Thus, mechanical removal is still the mainstay of treatment for biofilm-initiated conditions like caries, gingivitis and periodontitis.

Dental plaque represents a true biofilm, and its existence can easily be revealed to the patients using plaque disclosing agents (Figure 1). Its potential to calcify to form calculus increases the difficulty for removal and makes it all the more important to eradicate it in a timely or prophylactic manner. Conventional removal of sub-gingival plaque includes the use of ultrasonic scalers or hand instrumentation, while rubber cups with prophylaxis polishing agents can be used to remove supra-gingival plaque. The types of abrasive particles incorporated in the polishing pastes include pumice, aluminum oxide, silicon carbide, garnet, feldspar, zirconium silicate, emery, perlite etc. These conventional treatment modalities have been shown to be effective in plaque removal and restoring patients back to gingival health. However, there have been concerns regarding extensive tooth hard-substance loss and patient comfort and experience during treatment which may affect patient compliance to proceed with the maintenance phase after initial periodontal therapy. Thus, extensive research and technological innovations have been carried out in recent years to come out with a more novel approach for biofilm removal.

Biofilm Removal- An Innovative Approach

Air polishing with the appropriate powder: Its indications have been extended from biofilm removal for natural teeth to a new state of preventive, efficient and comfortable care in implant maintenance and management of peri-implantitis.

By Dr. Wong Li Beng, Singapore

Biofilm revisited

Although it would not be an exaggeration to say that without the formation of biofilms in the mouth, oral hygienists and periodontists would never have existed. The oral cavity is a dynamic environment, where there is a constant accumulation of microorganisms, embedded within an extracellular polymeric matrix, that adhere to the tooth surface or any hard non-shedding material.[1] Within the biofilm, the microorganisms interact via quorum sensing, pretty much like how we exchange greetings, marketing tips, and Christmas gifts with the residents living nearby in a neighborhood setting. This “friendly exchange” among the microorganisms may increase their virulence level and antibiotic resistance in multiple folds compared to them existing separately in planktonic state. Thus, mechanical removal is still the mainstay of treatment for biofilm-initiated conditions like caries, gingivitis and periodontitis.

Figure 1

Figure 2

By Dr. Nijad Mina, DDS, MSc, MRDM, Lebanon (Head of Periodontology Department, Saint Joseph University, Lebanon)

Dr. Lara Sawaya Jammoul, UAE

Dr. Maroun Dagheer, Lebanon (Senior Lecturer at Saint Joseph University, Lebanon)

Assist. Prof. Nadim Mokbel, Lebanon (Head of Periodontology Department, Saint Joseph University, Lebanon)

Dr. George Sanoop, UAE

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Robyn Watson, IFDH, Australia

Dr. Nijad Mina, DDS, MSc, MRDM, Lebanon

Delegates during Panel Discussion at the Dental Hygienist Seminar

CAPP will once again organize this marvellous event on 03-04 November 2017 at the Intercontinental Hotel in Dubai Festival City and all international dental professionals interested are cordially invited.

Seven lectures took place throughout the day with each session finishing off with heated debates at the Panel Discussion which was hosted by the chairman Professor Crawford Bain, Professor & Program Director in Periodontics at Hamdan Bin Mohammed College of Dental Medicine in Dubai, in UAE. Dental hygienists, as part of the dental team, enjoyed this event under the seminar theme “Dental Hygiene – Challenges and Opportunities for the Dental Professionals”. A total of 27 dental professionals expanded their knowledge with the scientifically based topics and the modern concepts in dental fields. To reach the goal, the initiator had included pre- and post- seminar hands-on courses in distinct dental topics. The dental hygienists were able to practice and master new techniques applied which will be imperative in their future work.

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In a double-blind, parallel group study, 120 patients directly applied either Colgate® Sensitive Pro-Relief™ toothpaste, a regular desensitising toothpaste† or a regular toothpaste‡ to sensitive teeth. Change in hypersensitivity was assessed using air blast sensitivity scores, where a lower score indicates better pain relief.

Not only did Colgate® Sensitive Pro-Relief™ provide instant relief of dentine hypersensitivity, both immediately after direct application and after 3 days of use, but it also provided superior pain relief when compared with the other toothpastes.

Recommend Colgate® Sensitive Pro-Relief™ to your patients suffering from hypersensitivity due to acidic tooth erosion – clinically proven to treat hypersensitivity and relieve pain fast.*2

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<th>Air blast sensitivity score</th>
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<tr>
<td>Baseline</td>
<td>Immediately</td>
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<tr>
<td>Control with KNO₃ and NaF</td>
<td>Control 2 with MFP</td>
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* p < 0.05 compared to baseline
• p < 0.05 compared to control

References:
Air Polishing Devices: Basic Principles

The basic concept for air polishing is nothing new. In fact, it was first introduced in the dental market in 1945 for cavity preparation using aluminum particles [1]. Modern air polishing devices use pressurized air and water to deliver a controlled stream of powder in a slurry through a handpiece nozzle. There are usually 2 concentric openings, with the air and water jet exiting the inner one and water the outer one (Figure 2). This is directed towards the tooth surface to remove surface stains, dental plaque and other soft deposits.

The ability of the combination of air, water and powder to remove substances on the treated surface is dependent on several factors and we can broadly classify them under hydropneumatic factors, abrasive media related factors and user-related factors [4].

Hydropneumatic factors:

a) Amount of water
b) Air pressure

Abrasive media related factors:

a) Emitted powder mass
b) Angulation of nozzle
c) Instrumentation time

To explain briefly, for example, the higher the air pressure, the higher in substance removal. Large [5] can modify angulated edges and higher mohs hardness is said to lead to a higher efficacy.

The tables below (Table 1-3) illustrate the mohs hardness values of various materials used for polishing and, how they vary with the hardness of tooth structures as well as with different abrasive media.

Conventional material used as air polishing media are:

- Inorganic powder (eg pumice, silicon carbide, zirconium silicate etc all have a higher mohs hardness value than tooth structures and restorative materials. Prolonged usage can result in irreversible and intragenic erosion of enamel, dentin and hard tissues. In addition, restorative materials can be abraded and roughened, and this can cause them to be more plaque retentive in the long run.

Sodium bicarbonate powder (eg EMS Classic Powder) has been used in the market since the 1980s. It is non toxic and water soluble, although up to 8% of silicon oxide or tricalcium phosphate is usually incorporated to enhance hydrophobicity, an important characteristic to sustain powder flow when mixed with water. It is commonly used for removal of supragingival stains and plaque from intact enamel surface because it is safe and efficient when efficacy for clinically significant surface alterations is considered. Many studies have shown that air polishing using sodium bicarbonate takes only a third of the time required for supragingival stain and plaque removal compared with hand instruments or rubber cups with polishing paste [6]. However, sodium bicarbonate powder should not be used for subgingival plaque removal. Experimental results have demonstrated substantial root surface loss when it is directed towards de-根ed root surface [7]. In addition, it has also been documented to cause severe epithelial erosion when it is directed towards the soft tissues [8]. Thus, usage of sodium bicarbonate for subgingival plaque removal should always be avoided.

Glycine powder (eg EMS Perio Pow-der, 3M ESPE Clinpro Powder) entered into the market during the mid-90s to address the clinical limitations of using sodium bicarbonate powder to eliminate subgingival plaque removal while minimizing trauma to the root surface and soft tissues.

It is also possible to use a similar duress as a flouride enhancer because of its light sweet taste. The mean particle size of glycine powder used for air polishing is less than 25 µm, which means that it is less likely to be found and which makes it more effective.

Erythritol powder (EMS Plus Powder) was recently launched in 2013 to incorporate the stain removal capability of sodium bicarbonate powder together with the gentle characteristics of glycine powder on both hard and soft tissues. Glycine is a non-essential amino acid and an important component of most polyglycine. It is also commonly used in air polishing media as a food additive. When used as a polishing paste, both treatments resulted in significant reductions in orange and red microbial stains as well as probing depth and bleeding on probing after 2 months, and there were no significant differences between the 2 treatment modalities. Perceived treatment discomfort, however, was lower for air polishing than ultrasonic instrumentation.

In a recent in vitro study involving the use of erythritol powder, a different size of 4-7µm was compared in terms of biofilm removal and defomation, surface alterations, and biofilm attachment. Clinical trials on periodontal debridement using the ProphyJet as an instrument for air polishing proved higher tooth substance loss when treated with erythritol powder compared as shown in Figure 3. Results from this experiment demonstrated highest bacterial reduction when treated with air polishing using erythritol and chlorhexidine, highest tooth substance loss when treated with hand curettes, significant roughened surface when treated with curette and ultrasonic and highest PDL fibroblast attachment when treated with ultrasonic and air polishing using erythritol.

Based on the results obtained from various studies, the following conclusions can be drawn:

1. Air-pollishing devices have been shown to be efficacious in removing supra- and subgingival biofilm and stain.
2. Indications for the use of air pol-ishing devices have been expanded from supra-gingival air polishing to sub-gingival air polishing.
3. The development of abrasive glycine-based powders and devices with sub-gingival nozzle provides better access to sub-gingival and interdental areas.
4. Mineralised deposits (calculus) can be removed more effectively by power driven or hand instruments.

Air polishing devices, better dental care, especially with improved mechanical biofilm management in the dental practice.

References

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Clinical evidence

In the modern world of evidence-based dentistry, no product can stand the test of time if its perceived clinical efficacy, benefits and safety cannot be substantiated through clinical trials. Numerous studies have been carried out over the years to demonstrate the use of air pol-ishing technology as a modern rel-able treatment modality for biofilm removal and the results have been mostly positive.

In a clinical trial conducted on pa-tients using a powder type air pol-oidal therapy, using a split-mouth design, sites with residual probing defects were assigned to either ultrasonic instru-mentation or sub-gingival biofilm removal using the airpolishing device with a special sub-gingival nozzle (Figure 4, demonstration of 2 and 32µm powder). Both treatments resulted in signifi-
cantly reductions in orange and red microbial stains as well as probing depth and bleeding on probing after 2 months, and there were no significant differences between the 2 treatment modalities. Perceived treatment discomfort, however, was lower for air polishing than ultrasonic instrumentation.

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4. Mineralised deposits (calculus) can be removed more effectively by power driven or hand instruments.

Conclusions and future directions

Based on current evidence, the use of air polishing device with the ap-propriate powder may have opened a whole new horizons in preventing dentistry. With a sound track record of clinical efficacy and comfort in both professional and patient teeth, its indications have also been extended to preventive care in implant maintenance and during peri-implantitis. With heightened aware-ness and proper training among the dental professionals and Oral Health Therapists on the use of air polishing devices, better dental care, especially with improved mechanical biofilm management in the dental practice.

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The Relationship between Periodontitis and Atherosclerosis and Diabetes

By Sunstar GUM

Heart attack is the leading cause and diabetes is the sixth-leading cause of death in the United States. What goes relatively unnoticed, however, are their respective relationships with oral health especially periodontal bacteria that breed inflammation. This Sunstar E-Brief explores the cell-to-cell interactions behind the inflammation process and features insight from an expert on the subject.

In exploring how periodontal bacteria trigger inflammation in tissues far removed from the oral cavity, oral health professionals need to understand several underlying concepts and the direct role they play in periodontal diseases. Jepsen, DDS, MD, MS, PhD, professor and chairman of the Department of Periodontology, Operative, and Preventive Dentistry at the University Hospital of Bonn in Bonn, Germany says three things are most important to understanding cell-to-cell communication relative to this oral systemic link.

First, periodontal bacteria are disseminated into the body's circulation. Especially in cases of advanced periodontitis, Jepsen notes, "these bacteria are able to thereby elicit so-called systemic inflammation."

The second key component of this cell-to-cell communication, according to Jepsen, is that systemic inflammation can promote atherosclerosis. "Systemic inflammation can also lead to impaired blood sugar control," Jepsen says, "which may have negative effects on the periodontum."

And, the third consideration concerns the effects of oral health professionals' work. "Oral health professionals should be aware that periodontal therapy may positively impact these conditions," Jepsen points out.

Inflammation and Arteries

In periodontitis, the inflammatory response is caused by the spread of microbes. These microbes can trigger a similar inflammatory response in arterial tissues that sets the stage for the hardening of the arteries, or atherosclerosis, which can lead to heart attack. Additionally, fatty streaks are caused by white blood cells that travel into blood vessel walls and become macrophages. Macrophages assist in the uptake of low-density lipoprotein (LDL) cholesterol, or "bad cholesterol." The absorption of LDL cholesterol, facilitated by periodontal bacteria, creates foam cells that eventually die and form a dead core within the fatty deposits. Other immune cells are added to the deposits, which causes the artery to narrow further. This process gradually robs heart tissues of vital nutrients and oxygen.

The substances created by periodontal bacteria can harm the underlying connective tissue within the arteries. The vascular deposits eventually break up and leave a wound that allows blood to coagulate, facilitating blood clot formation. The blood ves- sel is increasingly narrowed by the clot formation and can completely close the blood vessel, raising the risk of heart attack and stroke. The bloodstream continues to transport the inflammatory substances produced by the damaged endothelial cells throughout the body, triggering a generalized inflammatory response.

Effect on Sugar Metabolism

Periodontitis and diabetes tend to exacerbate one another. Type 2 diabetes is also related to the general inflammatory reaction caused by bacteria associated with periodontitis. Such inflammation can negatively affect the regulation of blood sugar, or glucose.

Blood sugar levels are regulated by the hormone insulin, which is produced in the pancreas. Insulin binds to insulin receptors located on cell membranes. In turn, the binding activates glucose transporters that take blood sugar into cells, where it is processed for energy or storage. In a healthy body, this mechanism causes blood sugar levels to drop. This mechanism is disrupted, however, in the presence of generalized inflammation, which creates substances that inhibit the binding of insulin and reduce the cell's uptake of sugar. This leaves the body's glucose levels high. Inflammatory substances that are by products of periodontitis appear to play a special role in this disruption.

Even when diabetes is absent, a severe case of periodontitis can increase the body's blood glucose levels. This condition eventually can make the body's cells unresponsive to messengers, leading to insulin resistance.

Diabetes not only affects blood glucose levels, it can also negatively impact periodontal status. For example, when blood sugar remains elevated, significant numbers of proteins adhere to the excess sugar that has attached to hemoglobin in red blood cells. This process creates advanced glycation end products (AGEs). Glycation occurs when insulin does not properly metabolize sugars, thereby promoting the destruction of collagen in blood vessels. In turn, this process causes blood vessels to become brittle and form plaque.

ACGs also promote periodontitis by crosslinking fibers of the connective tissue, impairing periodontal wound healing. The body's white blood cells and vascular wall cells also recognize ACGs, triggering the formation of messengers that encourage inflammation. The messengers summon inflammatory cells, while disturbing the wound healing process accelerating the destruction of periodontal tissues.

Seeing is Believing

Sunstar has created a three-dimensional (3D) video to better explain these concepts. The 3D video, Cell-to-Cell Communication Oral Health and Systemic Health, for which Jepsen was a creator, outlines specific benefits that are important to oral health professionals. "The film illustrates how periodontitis may contribute to systemic conditions such as atherosclerosis or diabetes, or negatively influence their course. It also shows how diabetes negatively impacts the periodontal tissues," Jepsen says.

Jepsen describes the video technology as an excellent example of modern science education. "It is hoped that [this video] will help oral health professionals communicate these findings to their patients," Jepsen adds.

There is more to be learned about cell-to-cell communication that will continue to shoulder a considerable role in modern science. "It is hoped that [this video] will help oral health professionals communicate these findings to their patients," Jepsen adds.

With periodontal diseases affecting more than 70% of some adult populations in the US, the challenge of holding periodontal bacteria at bay persists. Oral health professionals, equipped with the understanding of how these microbes affect the entire body and trained with the clinical skills to address them at the source, will continue to shoulder a considerable responsibility in helping at risk patients maintain their oral health.

References

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hands on workshops on 1st March, 2017

"Pediatric Zirconia Crowns and Primary Stainless Steel Crowns"

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SPEAKERS

Prof. Tim Wright (USA) • Dr. Bill Wyggenes (USA) • Prof. Jorge Luis Castello (Peru)

Prof. Richard Wellsbury (UK) • Prof. Zafar Cehreli (Turkey) • Dr. Ariza Al Jhwar (Saudi Arabia)

Dr. Yousef Al-Awadh (Kuwait) • Prof. Suhad Al Jundi (Jordan) • Dr. Catherine Hong (Singapore)

Dr. Ali Al Mishaieh (Saudi Arabia)
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**4TH ASIA-PACIFIC EDITION**
CAD/CAM & DIGITAL DENTISTRY INTERNATIONAL CONFERENCE

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<td><strong>SINGAPORE</strong></td>
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**RESTORATIVE & AESTHETIC DENTISTRY**
Certificate, Diploma and Fellowship Programme

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<th>Module</th>
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<tr>
<td>1</td>
<td>Sep 2017</td>
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**DUBAI, UAE**

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**9TH DENTAL - FACIAL COSMETIC CONFERENCE / EXHIBITION**
Joint Meeting with 6th AAID Global Conference Dental Hygienist Seminar

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