Poster Presentation submission open for dental professionals at the 12th CAD/CAM & Digital Dentistry Conference/Exhibition

By Dental Tribune MEA / CAPPmea

Are you impatiently looking for a thriving opportunity to exhibit your recent dental research on one of the largest dental events in the Middle East region?

CAPP (Centre for Advanced Professional Practices), has announced the upcoming 12th CAD/CAM & Digital Dentistry Conference/Exhibition. The international dental conference is scheduled to be held on 05-06 May 2017 at the Intercontinental Hotel Festival City in Dubai. It opens up an exciting opportunity for competent professionals to submit their poster presentations.

The CAD/CAM & Digital Dentistry Conference is the twelfth edition organized by CAPP, particularly designed for the skilled dentists who are aiming to expand their educational and business knowledge. The dental conference and exhibition ensures a possibility to uplift the careers of dental professionals, thus providing a gateway for acquiring the utmost benefits.

Additionally, at the event, a number of participants enjoy the privilege to show their capabilities & knowledge among internationally high-qualified experts. It enables the dental professionals to nourish their absolute skills and show their capabilities to the outer world which are analyzed by an expert team of judges after their in-depth reviews.

Earlier in November 2016, over 20 posters were submitted by dentists from various countries during the annual 11th Dental Facial Cosmetic International Conference in Jumeirah Beach Hotel, Dubai.

CAPP invites all dental professionals to present their papers at the 12th CAD/ CAM & Digital Dentistry Conference/Exhibition. The conference will also include by educational lectures led by industry experts, hands-on courses, face-to-face business opportunities and an exclusive chance to avail networking opportunities with the industry peers.

If you are confident about your educational research and intend to submit a poster presentation, submit it on the organizer website (www. cappmea.com/cadcam).
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Computer simulations show lasers effective in killing oral bacteria

By DTI

NEW YORK, USA: A team of researchers at the New York Institute of Technology in the U.S. has developed a computer model that demonstrates how dental lasers attack oral bacterial colonies in gingival tissue. The results of their study suggest that certain dental lasers used for sulcular debridement can effectively remove oral pathogens buried deep in the soft tissue while sparing the gingiva.

Lasers are used in various dental procedures, including nonsurgical periodontal treatment, which is aimed at removing bacterial debris in order to treat and prevent gingivitis and periodontitis. However, the cost of dental lasers can range from $5,000 to over $100,000, and healthcare professionals have to undergo extra training to use them.

In order to establish whether these additional costs and effort are justified, the U.S. researchers aimed to determine whether there is a definite benefit of using dental lasers in periodontal treatment. Moreover, they wanted to ascertain how certain laser parameters, such as wavelength, peak power and pulse duration, affect the destruction of oral bacteria.

Based on the optical characteristics of gingival tissue and pathogenic microorganisms, the researchers developed a mathematical model that simulates the periodontal procedure of laser sulcular debridement. They then produced simulations of three different types of lasers commonly used in dentistry and their effects on two types of bacterial colonies. The virtual colonies, consisting of Porphyromonas gingivalis and Prevotella intermedia, were of various sizes and placed at different depths in the gingival model.

“One of the questions we asked is how deep could the bacteria be and still be affected by the laser light,” explained study author Dr. Lea Reinisch, an expert in laser surgery and optical biomedical diagnostics and Associate Provost for Academic Affairs at the university.

Dental lasers tested in the study included diode, Nd:YAG and Er:YAG lasers. According to the computer model, two of the laser types—diode lasers and Nd:YAG lasers—proved to be effective in removing the bacterial colonies. "The findings are important because it opens up the possibility of tweaking the wavelength, power, and pulse duration to be the most effective for killing bacteria," Reinisch said. The simulations indicated that 810 nm diode lasers, when set to short pulses and moderate energy levels, are able to destroy bacteria buried 3 mm deep in the gingival tissue. Nd:YAG lasers with a wavelength of 1,064 nm also proved to be effective with similar penetration depth.

Moreover, both lasers spare the healthy tissue, the researchers found. Their simulations showed minimal heating of the surrounding tissue and therefore minimal thermal damage, which leads to faster healing, Reinisch explained.

According to him, the simulations validate the effectiveness of dental lasers in removing oral bacteria and contributing to better oral health after periodontal treatment. The researchers expect that clinical trials based on the results of their study will be designed to confirm their findings.

The study, titled “Selective photoablation,” was published in the October issue of Lasers in Surgery and Medicine. In a first for the journal, the published results include video depictions of the computer simulations. A video of the simulations can be watched below:

A new study by U.S. researchers shows that certain dental lasers are effective in removing and pathogens buried deep in the soft tissue during periodontal treatment. (Photo: alakow/Shutterstock)
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Herbal toothpastes effective in reducing inflammatory markers, study finds

By DTI

SANGLI, India: When it comes to harmful ingredients, herbal oral care products, which usually do not contain artificial substances such as sweeteners, colourants or preservatives, are considered a safer alternative to most conventional dentifrices. However, to date, sufficient research on the efficiency of plant-derived traditional medicine for primary health care purposes is yet to be published. Khairnar and his colleagues found that herbal toothpaste tested was more effective in reducing salivary glucose levels when compared to other toothpastes. However, it is estimated that about 80 per cent of people in developing countries still rely on plant-derived traditional medicine for primary health care purposes. In the Western world too, herbal products are increasingly considered a healthier and safer alternative to products containing chemicals. However, when comparing the oral health benefits of conventional dentifrices and plant-derived dentifrices, existing research mainly focuses on the antimicrobial properties of herbal toothpastes. Expanding on this approach, the Indian researchers investigated changes in the levels of salivary alkaline phosphatase (ALP) and salivary acid phosphatase (ACP) with the use of herbal toothpaste over the course of four weeks.

ALP is an inflammatory marker that promotes the inflammatory process and ultimately periodontal disease and ACP is a salivary factor associated with calculus formation and hence inflammation, lead author Dr Mahesh Khairnar told Dental Tribune Online.

The toothpastes evaluated in the study were Dant Kanti (Patanjali), Complete Care (Himalaya Herbals) and Vicco Vajradanti (Vicco). The study was conducted among 45 dental students, who were grouped into three groups (15 subjects per group and toothpaste) and instructed to brush twice daily with the respective toothpaste and saliva samples, consisting of an unstimulated saliva sample taken first thing in the morning and one after brushing, were obtained on a weekly basis on Day 1, 7, 14, 21 and 28.

All three toothpastes showed significant reductions in salivary ALP and ACP levels after brushing at each interval. While the dentifrices were evaluated individually, the Dant Kanti and Vicco Vajradanti toothpastes were found to be more effective in reducing the levels of salivary ACP and ALP than the Complete Care toothpaste, the researchers wrote.

While all herbal toothpastes tested inhibited ACP and ACP activity in the saliva of the participants, long-term clinical trials are needed to quantify the efficacy of herbal toothpaste, the researchers emphasised. Moreover, they suggested that future studies assess the combined effect of herbal toothpastes and herbal mouthwash.

The study, titled “Comparative evaluation of efficacy of three different herbal toothpastes on salivary alkaline phosphatase and salivary acid phosphatase—A randomized controlled trial”, was published in the September issue of the Journal of Clinical and Diagnostic Research.

The preliminary results of a similar study by the same research group corroborate these findings on the oral health potential of herbal toothpastes. In the study, the findings of which are yet to be published, Khairnar and his colleagues evaluated the effect of herbal toothpastes on pH values and glucose levels in saliva—both of which are factors that influence oral health. Increased salivary glucose is responsible for increased caries incidence, and acidic salivary pH values can facilitate caries formation.

According to Khairnar, the results thus far indicate that herbal toothpaste is effective in reducing salivary glucose levels, while salivary pH values increased and shifted to the alkaline range, which is considered most beneficial for oral health.
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Why interdental brushes are essential for good oral health

By Dental Tribune Asia Pacific

Prof. Denis Bourgeois is not only the Dean of the University of Lyon’s dental faculty in France but also a pioneer in research on oral prophylaxis, interdental biofilm management and interdental brushing techniques. He was the first to test for 19 major pathogens in the interdental biofilm known to be involved in periodontitis in young healthy adults. Furthermore, he has suggested interdental brushes to prevent interdental biofilm accumulation as well as to decrease the development of periodontal diseases and even systemic diseases. “An interdental brush can remove around 16 billion bacteria from each interdental space,” said Bourgeois during his presentation at the FDI Annual World Dental Congress in Poznan, Poland.

Despite advances in good oral health care, many patients and dental professionals remain uncertain about oral physiopathology and the concept of disruption of biofilm instead of traditional toothbrushing is not effective according to various studies, conventional methods of daily toothbrushing and interdental cleaning instruments as standard for achieving and maintaining good oral health. However, uncertainty has remained about oral physiopathology and the concept of disruption of interdental biofilm.

Sixteen billion bacteria in one interdental site

So why does interdental cleaning actually matter? The anatomy of the interdental space does not allow for an efficient salivary self-cleaning mechanism and makes cleaning this area difficult. As a means of further understanding the mechanism of periodontal pathologies, Bourgeois was the first to use real-time polymerase chain reaction to quantify and qualify the interdental biofilm in healthy adults and explain the role of interdental biofilms management in preventive oral health.

In his study, an astounding approximately 16 billion bacteria were collected on average from each interdental site. Of the 19 major periodontal pathogens quantified in the study, bacteria of red and yellow complexes constituted the majority of interdental bacteria. In particular, red complexes such as Porphyromonas gingivalis, Tannerella forsythia and Treponema denticola were recognized as the most important pathogens in adult periodontal disease. P. gingivalis was detected in 79 per cent of healthy subjects and represented 0.02 per cent of the interdental biofilm. As dental research has confirmed, P. gingivalis alone can induce alveolar bone loss, and in combination with T. denticola and T. forsythia, periodontal disease is likely to occur. This means that the interdental biofilm of even healthy individuals is composed of bacteria that could lead to periodontitis. “The effective presence of these periodontal pathogens is a strong indicator of the need to develop new methods of controlling it in daily oral hygiene,” concluded Bourgeois.

Bleeding as a clinical reference

Despite good oral hygiene habits, many patients experience interdental bleeding. “As we have seen, the interdental space is a source of bacterial contamination and has an effect on overall health,” said Bourgeois in his presentation. According to the latest research, 37 per cent of young adults without periodontal disease or clinical gingivitis have experienced interdental bleeding at least once. This information should be considered critical for daily oral hygiene and interdental cleaning in particular. “There is a need to use interdental cleaning tools in order to achieve optimum oral health. If you do not use them, you could essentially stop using a toothbrush, as bleeding will occur otherwise anyway in the future.”

In a study titled “Efficacy of interdental calibrated brushes on bleeding reduction in adults,” a 5 month randomized controlled clinical trial, a test group was asked to use a standard manual toothbrush twice daily and an interdental brush daily. Based on the hypothesis that interdental brushes reduce interproximal bleeding, Bourgeois and his team investigated periodontal health and young individuals how to use interdental brushes daily and correctly. In addition, a calibrated colorimetric probe helped to effectively determine the interproximal space size. As the study suggests, the overall interproximal bleeding was reduced by 47 per cent after one week and 71 per cent after three months. Bourgeois and his team concluded that interdental cleaning can be considered as “an effective means to help individuals maintain and/or achieve optimal oral health.” As the general access widths of interdental spaces were mostly unknown in young adults, Bourgeois and his colleagues also assessed the distribution of these spaces in a study titled “Access to interdental brushing in periodontal healthy young adults: A cross sectional study.”

Importantly, 40 per cent of the sites studied showed bleeding upon passage of an interdental brush. An unexpected finding was the high number of adults (69.9 per cent) with greater than 30 per cent of bleeding sites. It was observed that this did not have a significant effect on the width of the interdental space. By measuring the interproximal space, the researchers concluded that the latest generation of interdental brushes was able to access 94 per cent of interdental spaces. Over 80 per cent of adults required a small diameter interdental brush (0.6–0.7 mm) from the Curaprox CPS Prime series. As a result, the study concluded that most interdental sites can be cleaned using interdental brushes, but accessibility of interdental spaces would need to be established in the dental practice by the dental professional.

Interdental brushes prove to be superior

Conventionally, interdental brushes were only recommended for patients with large interdental spaces, while dental loss was recommended for narrow spaces. As technology advanced, so did the innovation with interdental brushes, and as a result, interdental brushes can now be used for very small interdental spaces to clean the space between teeth effectively. “Dental loss used to be the common tool for narrow spaces. However, dental loss is no longer preferred, as its use is not supported by conclusive scientific evidence. For interdental brushes, we have scientific evidence. Interdental brushes have now become the best tool for cleaning interdental spaces,” said Bourgeois as Bourgeois concluded at the end of his presentation, “The interdental brush currently represents the primary and most effective method available for interproximal cleaning. Interdental brushes are specifically designed to clean between the teeth in accordance with the interdental space access diameter. The method of choice for interdental cleaning when brush space permits is to select the largest size that can penetrate into the interdental space and then to fill this space completely without causing discomfort or trauma.” By using a calibrated Curaprox SAP colorimetric probe, a suitably sized interdental brush will help individuals achieve optimal biofilm disruption through interdental cleaning with minimal trauma.

For all studies, Bourgeois and his team selected the CPS prime series of the Swiss oral care brand CURAPROX. More information can be found at www.curaprox.com.

“There is a need to use interdental cleaning tools in order to achieve optimum oral health.”

Prof. Denis Bourgeois, is working as a professor in the Faculty of Dentistry at the University of Lyon (13 Rue Guillaume Flamin, 69373 Lyon Cédex 08, France), and can be contacted by phone at +33 478 77 00 64 or by e-mail at denis.bourgeois@univ-lyon1.fr.
Dental fillings may contribute to increased levels of mercury in the body

By DTI

ATHENS, Ga., USA: Although the potential adverse health effects of mercury have been the subject of debate for a long time, the extent to which dental fillings affect mercury levels in the body was still unclear. A new study has now found that people with multiple dental fillings exhibited significantly elevated levels of mercury in their blood compared with people who did not have dental surface restorations.

The study, which analyzed data from nearly 15,000 individuals, is the first to demonstrate a link between dental fillings and mercury exposure in a nationally representative population. The researchers found that patients with more than eight fillings had about 150 percent more mercury in their blood than those with none.

They further analyzed exposure by specific types of mercury and found a significant increase in methylmercury, the most toxic form of mercury, associated with dental fillings, suggesting that the human gut microbiota, a collection of microorganisms living in the intestines, may transform different types of mercury.

Mercury exposure from dental fillings is not a new concern, but previous studies were inconsistent and limited, according to Dr. Xiaozhong Yu, co-author and Assistant Professor of Environmental Health Science at the University of Georgia’s College of Public Health. “This study is trying to provide the most accurate levels of exposure, which will form the scientific basis to make future risk assessment,” Yu said.

In response to the study, the American Dental Association (ADA) issued a press statement at the end of September that clarified that the association’s position on dental amalgam remains unchanged. “The mercury levels cited in the study did not exceed a level that according to the National Academy of Sciences would be known to cause adverse health effects. Thus no conclusions about the safety of dental amalgam should be drawn from this study. In addition, the study used data that included two different types of dental materials: composite, which does not contain mercury and dental amalgam, made from a combination of metals including silver, copper, tin and mercury. It is important to note that since the study does not differentiate between the two filling materials, the study’s findings may be prone to over-interpretation,” the ADA stated.

The ADA and the U.S. Food and Drug Administration consider dental amalgam fillings safe for adults. However, they advise against its use in pregnant women and children under the age of 6.

The study, titled “Associations of blood mercury, inorganic mercury, methyl mercury and bisphenol A with dental surface restorations in the U.S. population, NHANES 2003-2004 and 2010-2012,” will be published in the December issue of the Ecotoxicology and Environmental Safety journal. It was conducted by researchers at the University of Georgia and the University of Washington.