Adapting treatment planning

By DTI

XI’AN, China: A Chinese study comparing implant stability and peri-implant tissue response in heavy smokers and non-smokers has found that smoking did not affect the overall success of implant surgery. However, smoking did cause the bone around the implants to heal more slowly; thus, implants began to osseointegrate considerably later than in the non-smoking group.

In the study, 45 ITI (Straumann) implants were placed in the partially edentulous posterior mandibles of 32 male patients, of whom 16 were heavy smokers and 16 did not smoke at all. Implant stability and peri-implant tissue response were assessed at three, four, six, eight and 12 weeks post-surgery.

Although implants in both groups achieved osseointegration by the end of the 12th week, the healing process differed significantly between non-smokers and heavy smokers. In non-smokers, stability improved and implants began to better integrate into the bone after the second week. In the smoking group, however, implants only began to osseointegrate and become more stable after the third week. In light of the findings, the researchers suggested that surgeons might need to change their standard implant loading schedule for patients who smoke heavily. In addition, smokers should be aware that their habit promotes the loss of marginal bone and the further development of dental pockets and could thereby lead to complications even after osseointegration, they concluded.

The study, titled ‘Effect of heavy smoking on dental implants placed in male patients posterior mandibles: A prospective clinical study’, was conducted by researchers at the First Affiliated Hospital of Xi’an Jiaotong University in Xi’an in China. The results were published in the December 2016 issue of the Journal of Oral Implantology.

Love and teeth

BRISBANE, Australia: Research from the University of Queensland (UQ) has suggested a link between a healthy love life and good teeth. The study built on previous research in adult attachment theory and found that being in a trusting and happy relationship is more likely to encourage regular dental check-ups. “We determined that those who tended to avoid emotional intimacy, or worried their partner would not be available to them in times of need, were more likely to have negative oral health outcomes,” UQ researcher Grace Branjerdporn said.

The study examined a group of 265 people and found that financial factors played a surprisingly small role in oral health behaviours. With many participants covered by private health insurance (and thus able to access dental care cheaply), motivation primarily came from factors like aesthetic appearance rather than affordability.

Powdered gloves banned

The US Food and Drug Administration (FDA) has issued a final rule banning the use of most powdered medical gloves in the country. ‘While use of these gloves is decreasing, they pose an unreasonable and substantial risk of illness or injury to health care providers, patients and other individuals who are exposed to them, which cannot be corrected through new or updated labeling,’ the agency said when proposing the ban in March 2016.

According to the FDA, the powder that is sometimes added to natural rubber latex gloves to make them easier to put on and take off can carry proteins that may cause respiratory allergic reactions. The study, titled ‘Effect of heavy smoking on dental implants placed in male patients posterior mandibles: A prospective clinical study’, was conducted by researchers at the First Affiliated Hospital of Xi’an Jiaotong University in Xi’an in China. The results were published in the December 2016 issue of the Journal of Oral Implantology.

Better primary care

In an effort to enhance medical infrastructure in New Delhi, the Aam Aadmi government has announced to set up around one hundred new dental clinics. They will offer minor procedures and consultation services for oral diseases and will be located near existing Mahalla clinics.

Gonorrhoea prevention

Gargling with an alcohol-containing mouthwash could be a cheap and effective means of curbing the spread of gonorrhoea among men, Australian researchers have found. In the study, daily mouthwash use significantly inhibited the growth of the bacteria responsible for the infection.

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Augmented reality for dental use

By DTI

PERTH, Australia: An innovative team of researchers at the University of Western Australia (UWA) has developed augmented reality glasses that are designed to help dental students learn more efficiently, improve their handling of procedures and reduce teaching costs. The technology used for the glasses is in its final stage of development and is currently being trialed by students and professors at the university.

The team responsible for developing the device has already been recognised for their potentially revolutionary approach with the Commonwealth Scientific and Industrial Research Organisation (CSIRO) selecting them for inclusion in their prestigious ON Accelerate program. ON Accelerate aims to reward innovative concepts and technologies that are poised to change the world.

“Augmented reality (AR) is a type of virtual reality that involves semi-transparent, computer-generated imagery that is superimposed on the user’s view of the real world. This allows them to view both frames of reference simultaneously. Currently, dental students undergo training to acquire manual skills with the close supervision of their educator, which can be overly time-consuming. The technology’s lead developer, UWA student and researcher Marcus Pham, says that the glasses aim to address this inefficiency.

“A big problem at the moment is the amount of interruptions dentists face when performing procedures, with an estimated 20 per cent of their day spent carrying out non-clinical tasks and a significant amount of time spent away from patients during a procedure to review critical information,” Pham said.

“The technology we are developing will change this by providing dentists with all the information they need without them having to interrupt a procedure, so they can focus entirely on the patient.”

“This means the time taken to carry out procedures will be drastically reduced and the quality of the dental work will improve.”

The integration of digital workflows into dental practice has continued to increase in frequency. Augmented reality has only recently been used in dental education since 2005, but is positioned to play an increasingly more prominent role given how complex and demanding training dentistry can be. One of the main benefits of AR is that it allows for dentists to have relevant information displayed right in front of their eyes, instead of having to continuously refer to a computer. This enables students to apply their learned concepts to practical situations more easily and learn the appropriate dental techniques faster.

The AR glasses will also allow the instructing dentists to reduce the amount of time spent with each patient as they can service multiple patients at the same time. Comparative clinical testing was scheduled to begin in January and the UWA’s dentistry school is expected to officially incorporate the use of the glasses by the middle of the year.

First, I checked out some existing tooth brushing apps and what I found was that there were many apps available, but they were all aimed at kids or were too game-like. There were no apps available that would likely be used by teens or adults. For Brush’n’Save, I thought about how to develop an app that even adults could use and one that would encourage my daughter to keep brushing in the long run.

There were no apps available that would likely be used by teens or adults. For Brush’n’Save, I thought about how to develop an app that even adults could use and one that would encourage my daughter to keep brushing in the long run.

What were the most important features you wanted the app to have?

First of all, I thought it should help people stay motivated to brush their teeth. Next, it was important to present simple, effective tooth brushing methods in a way that would appeal even to teenagers, so they could brush along with the app and get their teeth clean all over, thereby avoiding cavities and periodontal disease in their entire lives. I also wanted it to be a full-featured app with something for adults too. For example, I wanted to include information about optimal brushing time and give a detailed look at good brushing motion.

How long did the development take and when was the app launched in Japan?

It took six months to develop, and the app was released in Japan in October 2014. Once it was launched, how was it received by users—and most importantly, did your daughter like it?

User response was very positive and the app got many favourable reviews. Many people with children expressed their appreciation. The app also got many good reviews from other adult users who said it helped them get their teeth really clean and that they use the app every day. Many dentists and dental hygienists have also told me that Brush’n’Savi is the tooth brushing app that they recommend to their patients—adults and children alike.

As for my daughter, when she heard that the app was being developed for her, she thought the idea was kind of silly but her attitude changed when she learned that she could earn money by brushing with the app on a daily basis. (Editor’s note: With the optional savings function, parents can reward their children for continuing to brush with the app for a certain period of time without skipping. The reward can be set in the form of actual money or other treats.) And then, just as I’d hoped, she started using the app every day, brushing toward the target of that monetary reward. By developing good daily brushing habits, I think she developed a greater interest in oral hygiene.

The English version of the app will now be available globally. Do you think that apps such as Brush’n’Save will become more important—or even routine—for people’s personal oral hygiene?

While tooth brushing is something that most people around the world do every day, many don’t brush properly. Rather, they do it their own way and do an imperfect job. The result is that many people still suffer from cavities and periodontal disease, so I hope that apps like Brush’n’Save can help people develop better, and the correct, oral hygiene habits.

As a practising dentist, what do you think is key when it comes to educating people about the importance of oral hygiene, and most importantly, motivating people to brush regularly?

I think that dental professionals need to develop a better understanding of what is needed to develop a good oral hygiene habit. These professionals need to be able to motivate people to brush by providing the right feedback and tailoring their message to each individual’s needs. The key is to be able to motivate people to brush by providing the right feedback and tailoring their message to each individual’s needs.

Thank you very much for the interview.

Dr Marius Steigmann, Implantology, Germany

Dr Edward Lynch, Restorative, Ireland

Dr Howard Glazer, Cariology, USA

Dr Karl Behr, Endodontics, Germany

Dr Kiyoshi Amano, Japan

Professor Amano (International) is Professor of Restorative and Aesthetic Dentistry, University of Tokyo, Japan.

Dr Heiko Marz, Implantology, Germany

Dr Rajibul Horon, Maxillofacial Surgery, Austria

Dr Graeme Jones, Tooth Engineering, Germany

Dr Marcus Pham, Dental Tribune Asia Pacific

Dr Lieven Govaerts, Restorative, Belgium

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Dr Marcus Pham, Dental Tribune Asia Pacific
Oral bacteria, cerebral microbleeds and stroke linked

By DTI

KYOTO, Japan: Cerebral microbleeds (CMBs) have attracted attention as an important predictive marker of stroke in several studies. Research further suggests that cnm-positive Streptococcus mutans, a type of oral bacteria associated with dental caries, is involved in the development of CMBs.

Seeking to clarify the connection, a team of Japanese researchers has now found evidence that cnm-positive S. mutans is a novel factor of cognitive impairment associated with CMBs and therefore may be linked to disorders such as stroke and dementia.

Aiming to understand the clinical significance of CMBs and the mechanisms of their production, researchers from Kyoto Prefectural University of Medicine examined 279 patients (average age of 70) for the presence or absence of the collagen-binding surface Cnm protein expressed on cnm-positive S. mutans in the saliva. In addition, cognitive function, dental health status and the prevalence of CMB were assessed. Oral examination included the number of remaining teeth, presence or absence of dental caries, and periodontal status of the participants.

In the study group, 94 per cent tested positive for S. mutans and 33 per cent for cnm-positive S. mutans, and 25 per cent showed collagen-binding activity associated with S. mutans. Magnetic resonance imaging of the brain detected CMBs in 73 participants (26 per cent). As for the dental examination, 31 per cent of the participants had dental caries and 28 per cent scored a Code 3 or higher on the Community Periodontal Index of Treatment Needs. The mean number of remaining teeth was 22.7 ± 7.5.

The analyses showed that cnm-positive S. mutans was detected more often among participants with CMBs than those without. Furthermore, the percentage of dental caries patients was significantly higher in the collagen-binding activity group, the study found.

According to the researchers, the findings suggest a molecular mechanism for the interaction between chronic oral infections and geriatric disorders, such as stroke and cognitive impairment. In order to clarify the causality, an intervention study focused on oral care and the microbiota in CMB subjects would be of interest, they emphasised. As the current data supports the important influence of the oral microbiota on neurological disease, they further called for improved collaboration between dental and medical researchers.

The study, titled “Oral cnm-positive Streptococcus mutans expressing collagen binding activity is a risk factor for cerebral microbleeds and cognitive impairment”, was published online on in the *Scientific Reports* journal.

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