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 implant 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, 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.

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.
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, said 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 having 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. AR technology has only recently been used in dental education since 2005, but it is positioned to play an increasingly more prominent role given how complex and demanding dental training 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 supervise multiple students at one 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.

**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 trialled 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 innovation selecting them for inclusion in their monwealth Scientific and Industrial Research Organisation (CSIRO) selecting them for inclusion in their prestigous ON Accelerate program. ON Accelerate aims to reward innovation.

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**Developed for her daughter to help focus on daily dental care**

**By Kristin Hübner, DTI**

Developed for her daughter to help focus on daily dental care, Japanese dentist Dr Kiyoshi Amano’s successful tooth-brushing app Brush’n’Save was first launched in Japan in 2014. The English version of the app is now to be released in about 150 countries. Dental Tribune had the chance to speak to Amano about how the app playsfully helps children, and adults alike, develop a greater interest in oral hygiene and improve their daily brushing habits.

**Dental Tribune: What gave you the idea to develop the app?**

**Dr Kiyoshi Amano:** My daughter was in grade 9 at the time. She had never had a cavity, partly because I had always been after her to brush her teeth from the time she was a little girl, but as kids get older, they no longer want to hear what their parents think they should do. I would say she would stay up late playing with her smartphone and often she would go to sleep without brushing, which meant she was at a much greater risk of developing cavities. I knew I needed to come up with something that would encourage her to brush on her own. I had the idea of combining brushing teeth with things my daughter would enjoy and I set out to create Brush’n’Save, a tooth-brushing app on your smartphone, where the user gets points and saves money by brushing their teeth.

**How did you get started with the process?**

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 and were too game-like.

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

For me, there were two main things I wanted to achieve: Firstly, to develop an app that was very engaging and fun, so that children would enjoy using it. Secondly, to develop an app that would encourage good brushing habits.

**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 parents 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’Save is the tooth-brushing app that they recommend to their patients—adults and children alike.

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

I think it’s all about making people motivated to brush at the same time each day, using good brushing techniques. I think this encourages them to brush regularly in maintaining their own oral hygiene.

**Thank you very much for the interview.**
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.

Oral bacteria, cerebral microbleeds and stroke linked now as a flow!