Memories of dental treatment haunt brains of anxious patients

TOKYO, Japan: The sound of a dental drill or suction system evokes a feeling of fear in almost every truth dental patient. New findings presented by Japanese researchers at a recent neuroscience meeting in the US have now revealed new insights into how the brain of anxious patients may react during treatment.

Using functional magnetic resonance imaging, a neuroimaging procedure to measure brain activity, they found stronger activity in the left caudate nucleus in anxious patients when playing them sounds of various dental instruments. When neutral sounds, like a French horn or pure tone, were played, however, activity in this region was found to be significantly lower.

No significant neural activity was detected when the same sounds were played to a control group of non-anxious patients. Instead, these patients showed stronger activity in the right and left superior temporal gyri, a part of the brain usually associated with auditory processing and other neural functions.

“Recent studies have indicated that the basal ganglia, including the caudate nucleus, may play a role in learning and memory functions. The subjects in the dental fear group therefore may be receiving feedback from memories of sounds of dental treatment,” researcher Hirokuni Kariie, from the Nippon Dental University’s Department of Pediatric Dentistry in Tokyo suggested.

He said that the findings, which have not been published yet, could be applied to assess the effectiveness of conventional interventions for dental fear, such as cognitive behaviour therapy.

The study is the first to have measured how the sounds of dental instruments relate to brain activity. It confirms the assumption that dental anxiety is mainly due to reasons other than the fear of experiencing pain through surgery.

No amalgam for kids

Environmental organisations in the Philippines have called on the Philippine Dental Association House of Delegates to pass a resolution that will phase down the use of amalgam as a dental filling material for children. The ban is supposed to protect the most vulnerable segment of the population from a harmful substance.

Representatives of BAN Toxics and the International Association of Oral Medicine and Toxicology in the Philippines stated.

According to the two Filipino organisations, amalgam fillings add significantly to the already high exposure to mercury resulting from artisanal and small-scale gold mining in the country.

Widespread tooth decay

Owing to bad oral hygiene habits and high consumption of sugary beverages and snacks, dental caries is still highly prevalent among children in Taiwan. According to figures of the Health Promotion Administration in Taipei, eight out of ten children at the age of five currently suffer from severe tooth decay. 

Indians to study oral cancer

Three dentists from India are among the first participants of the University of Dundee’s Master of Research in Oral Cancer programme. The Scottish university inaugurated its 12-month course, which is also the world’s first postgraduate research degree to focus exclusively on oral cancer, in September.

Report about sterilisation incident

An incident involving the use of improper sterilised instruments in the University of Hong Kong Health Service’s Dental Unit last year was evidently caused by an on-duty dental surgery assistant who failed to complete an autoclave process of a number of instrument packages. Although hundreds of patients were exposed to sterilised dental instruments, no infections have been detected in the aftermath of the blunder, a report published by an investigation panel of university staff in the Journal of the Farsom an Medical Association in Taipei, Taiwan, concluded.

The Centre for Health Protection in Hong Kong received information from the university about the incident in early November. Subsequently, over 500 patients having received dental treatment between 50 October and 2 November 2013 were tested to rule out bacterial infections or viruses such as Hepatitis B and C or HIV.

Despite complying with standard infection control guidelines, the panel recommended to resample the documentation process of future autoclave cycles.
Aussi study claims dentists are prone to visual illusion

Cavities made by the participants of the study were often made too large, which could be due to the Delboeuf illusion, which makes enclosed areas appear smaller than they actually are when seen in a larger context. (DTI/Photo courtesy of Robert P. O’Shea, Australia)

Cavities made by the participants of the study were often made too large, which could be due to the Delboeuf illusion, which makes enclosed areas appear smaller than they actually are when seen in a larger context. (DTI/Photo courtesy of Robert P. O’Shea, Australia)
Dentists feel unprepared for dental scheme

DT Asia Pacific

CANBERRA, Australia: The Australian Ministry of Health has refused claims by the Australian Dental Association to delay the introduction of the Child Dental Benefits Scheme in January 2014. They agreed, however, to conduct a timely review of the programme, which is intended to subsidise dental care for over three million children.

In the organisation’s letter, ADA president Dr Karin Alexander said that dentists feel largely unprepared for the introduction of the programme and firstly need to be fully briefed about its details. She said that there is still a grey area around the administrative requirements of the scheme which, she said could force dentists into making mistakes once it is introduced next month.

According to ministry officials, information leaflets are currently in preparation and will be sent to dentists this month in order to provide further details of the programme. Furthermore, an e-learning module and telephone hotline for dental provider inquiries will be available on the ministry’s website soon. They said that there will also be a national campaign to inform parents of the eligibility requirements.

A part of the former government’s National Dental Health Reform, the scheme entitles children between ages 2 and 17, who are on income support or whose parents receive certain tax benefits, to treatment costs of AUS$1,000 for basic dental procedures like examinations or extractions over a period of two calendar years. It will replace the current Medicare Teen Dental Plan which was launched under the Labour government back in 2008. An estimated AUS$3 billion will be provided this way to children in need for dental care over the next two years.

According to recently published figures of the Australian Bureau of Statistics in Canberra, access to dental care services remains limited in the country, particularly for children from low income households.

Advanced digital diagnostics

SINGAPORE: With the introduction of its diagnostic digital sensor Gendex GXDP-700, dental equipment manufacturer KaVo offers dentists a more economic entry into the world of 2-D and 3-D diagnostics.

According to the dental equipment manufacturer, various diagnostic problems can be competently solved through the large selection of 12 panoramic and five remote X-ray modes. With the optional volume extension to 60 x 80 mm, it is also possible to cover the whole mandibular arch with just one image. Both radiation dose and the time taken to effect diagnosis are reduced owing to indication-related volume selection, the company said. KaVo also highlighted the benefit of the Intelligent SmartLogic technology, whereby the most frequently used mode and preselect are automatically saved for use with the next image.

The Gendex GXDP-700 comes with a 10 inch wide touchpanel and a system for fast, easy and effective patient-positioning. The software solutions InVivo SD and VixWin 2D allow not only integration into almost any practice management software, but can also be used for diagnostic purposes, processing and further use of images.

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HAPPY NEW YEAR!
Dr. Ansgar Cheng

The holiday season is a time for celebration and gatherings of family, friends and colleagues. How can we forget staying up a bit late, eating tons of good food and having a couple of drinks too? For dentists, however, it is not uncommon to receive a frantic call or e-mail on Christmas Eve, for example, from a person who is in unbearable pain and needs urgent treatment.

In these cases, the issue is usually either a root canal flare up, or an infected and impacted wisdom tooth. One incident that is still fresh in my memory is of a young lady who was in Germany for the holidays several years ago. She had a root canal infection but all the dental clinics there were closed from Christmas Eve to Boxing Day. She was popping painkillers every three hours and even chewed on her baby daughter’s pacifier to relieve the pain. As she was a family friend, she sent me an e-mail and asked if we at Specialist Dental Group could assist. My staff explored the possibility of couriering medication over to her but it would have taken too long. In the end, she cut short her trip and flew to Singapore to have root canal treatment. Owing to the treatment, she was finally pain-free and ready to party well before New Year’s Eve.

Over the last few years, our team has encountered a few interesting emergency situations as a result of the holiday season celebrations. For example, we were called in to attend to dental emergencies as a result of people walking into glass doors after a night of drinking. I remember once seeing this elegant young couple in the middle of the night because the woman was a little drunk and she hit the glass door after losing her balance on her stiletto shoes.

In cases like that, the net outcome is usually as follows—the reinforced glass door stays intact and the teeth, lips, and, sometimes even the nose, get the brunt of the damage. We have certainly stitched up enough lips and fixed many teeth as a result of that.

Christmas delicacies like turkey, ham, nuts and chocolate are great for our palate but they are challenges to our teeth. On more than one occasion, we have had people showing up because they had their teeth chipped down by biting hard nuts, nutshell, and hidden pieces of bone in a big chunk of turkey. Veneers and braces have also been known to be dislodged due to the food being consumed.

After the holiday season, we also have a lot of people presenting with gum problems. Overworked teeth and gums combined with less time for tooth-brushing is an almost perfect formula for acute periodontal abscesses.

One pattern that I have observed over the years is that when it comes to dental emergencies during the holiday season, there is no pattern at all; anything and everything can happen. As a result, we try to ensure that at least one member of our dental team is available to stand by should a dental emergency occur during the festivities.

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Dr. Ansgar Cheng is a Prosthodontist at Specialist Dental Group in Singapore. He can be contacted at drcheng@specialistdentalgroup.com.

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Brain drain to cause severe health-worker shortage in poor countries

Researchers, poor countries will be affected worst by the severe shortage of health workers as the specialists they train migrate to wealthier countries. Although recent data suggests that the influx of internationally trained health workers has stabilised or declined in some Organisation for Economic Co-operation and Development (OECD) countries, overall migration of health personnel to OECD countries is increasing, the investigators said.

The report showed that in Austria, Belgium, Denmark, Germany, the Netherlands and Poland nearly 50 per cent of doctors were trained in non-EU countries. In Italy and France, doctors educated in other countries account for 60 per cent of the medical personnel.

According to the report, the UK has long been a primary destination country for doctors and nurses trained elsewhere, particularly India, Pakistan, South Africa and Nigeria, among other countries, owing to previous colonial ties.

The latest statistics from the General Medical Council show that 50 per cent of all doctors and 10 per cent of all nurses in the UK were trained in other countries.

Owing to increased utilisation of health services by an ageing population and insufficient numbers of people trained to replace retiring health workers, many EU member states are relying increasingly on health workers trained in other countries.

The European Commission estimates that the EU will be faced with a shortage of one million health professionals (250,000 physicians, 150,000 dentists, pharmacists and physiotherapists, and 590,000 nurses) by 2020.

According to the World Health Organization, an estimated 25 per cent of all doctors and five per cent of all nurses who were trained in sub-Saharan Africa were working in OECD countries in 2006.

Therefore, the authors of the current report suggested that Africa will be the most affected by the crisis.

They estimate that only three per cent of the world’s health workers are employed in Africa, although the continent has 24 per cent of the world’s global disease burden. The financial cost to Africa of losing trained health workers is estimated to be in the billions, and more than African countries receive in aid for health, they said.

The report also highlights the responsibilities of wealthy countries in recruiting international health workers and calls for internationally coordinated efforts to tackle the global health-worker shortage to prevent the widening of global health inequality.

The report, titled “The health worker crisis: An analysis of the issues and main international responses”, can be downloaded from Health Poverty Action’s website.
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Few people are granted the opportunity to become an active part of historical events. Seventy-six-year-old Dr Don T. Curtis, a former dentist and oral surgeon from Amarillo in Texas, is one of them. As a resident in oral and maxillofacial surgery at Parkland Memorial Hospital in Dallas, he was one of the first doctors to have performed emergency treatment on US President John F. Kennedy after he was shot on 22 November 1963. DTI Group Editor Daniel Zimmermann had the opportunity to speak with him about that day and the opportunity to become an accessory part of historical events.

**DTI: A feature film about the events at Parkland Memorial Hospital, produced by Tom Hanks and starring Billy Bob Thornton, has just been released on the 50th anniversary of the Kennedy assassination. Have you seen it, and does it stay true to the events, in your opinion?**

Dr Don T. Curtis: I have not seen it but I have heard criticism that it paints rather a sensationalised picture of the events. I guess I would go see it if it were shown here in Amarillo.

**You began working at Parkland Memorial Hospital in 1963. What was your position back then?**

At that time, I was half way through my first year of residency in oral and maxillofacial surgery. Before I took a residency there, I also completed an internship. I became interested in the field while working as a surgical technician in a general hospital during my time in dental school at the Texas A&M University Baylor College of Dentistry in Waco.

**Were you aware of the president being in Dallas on 22 November 1963?**

I was not aware of that and was surprised when they brought him to the hospital. I had a surgery scheduled for later that day and was on my way to have lunch. The way to the lunch-room however required me to leave the building and walk across the receiving area of the emergency room, where I noticed police cars and the presidential limousine, which had blood on it and roses that were given to the First Lady, Jacqueline Kennedy, when she arrived at the airport. When I looked up later, the room was filled with the senior chiefs of all surgical departments at Parkland. There were also some people I did not know.

**Where were you when you heard the shot?**

I was unaware of the nature of the injury to the president because his head was on a pillow and I could not see a wound. I remember the chief of neurosurgery, Dr Kemp Clark, rotating Kennedy’s head to the left, revealing that the posterior part of his skull had been radically fractured. He then said, “Stop; this injury is incompatible with life.”

**In what condition was Kennedy when you arrived?**

When I got there, it was obvious that the president was in extremis. He tried to breathe but was unable to do so. Dr Charles James Carrico, a Parkland resident surgeon, had placed an endotracheal tube in an attempt to ventilate. However, that did not work because there was a blockage of the president’s airway, so he decided to do a tracheostomy.

**What was the atmosphere in the room?**

I helped the nurse to undo the president’s tie and remove his shirt to prepare him for the procedure. Then Dr Malcolm Perry, a senior surgeon, came into the room and it was decided that he should do the tracheostomy. Dr Carrico assisted Dr Perry, and I performed a cut-down on the left leg to provide for intravenous replacement of blood. When I looked up later, the room was filled with the senior chiefs of all surgical departments at Parkland. There were also some people I did not know.

**“My personal belief is that there were of course multiple shooters and that Oswald did not do it alone.”**

It became very quiet. Nobody said anything. **In your opinion, was there any chance that the president’s life could have been saved?**

Nothing that we did made a difference. Kennedy’s wound was clearly incompatible with life.

**According to eyewitnesses, discussions broke out about who was authorised to do the autopsy. Did you notice any of that?**

I did not because I left the trauma room soon after the president had been pronounced dead and went back to the clinic to see my patient in the operating room. However, I found that all scheduled surgeries for that day had been cancelled and all patients had been sent back to the ward. Only a few surgeries were underway at that time, including that of Governor John Bowden Connally, who had also been injured during the shooting.

**I told my patient that her surgery had been postponed. She understood that. Since there was nothing else for me to do, I then cleared my business in the clinic and went home. There, we spent the weekend watching television and listening to the news on the radio. We were relieved that...**
President Lyndon B. Johnson had made it safely back to Washing-
ton and that the government was uninterrupted. Finally on Sunday, we learned that the suspect, Lee Harvey Oswald, had been shot, which indicated that there was something going on in addition to just a lone shooter.

The majority of Americans do not believe that Oswald acted alone, as concluded by the report of the Warren Commission appointed by the government to investigate the circumstances of the assassina-
tion. Did you observe any irregularities between this of-

Official version and the events you witnessed?

The Warren Commission’s report reflected what the people wanted to hear, which was that Oswald acted alone and that there was no conspiracy. The doctors of Parkland however when wiping the blood from Kennedy's neck for the tra-

cheostomy found a single bullet hole that was apparently an en-

trance wound, which meant that must have been a projectile that entered the president from the front. Because of its nature, the wound on the back of Kennedy's head was an exit wound, so there must have been at least two bul-
lets that came through the front.

While all the doctors's testimo-
nies, including mine, were includ-
ed in the report, their knowledge of the wounds did not have much influence on the Commission's overall conclusion. Why it was interpreted that way has remained a mystery for the past 50 years.

What do you believe actu-

ally happened that day?

My personal belief is that there were of course multiple shooters and that Oswald did not do it alone. This would indicate however that there was in fact a conspiracy.

After the events, you stayed at Parkland Memorial Hospi-
tal for another two years. Were the events still discussed by the staff in the aftermath?

We actually never talked about it. This was something we just did not want to discuss. However, I left Parkland in 1965 for an exchange residency in London and Zurich,

where I often discussed the events with my colleagues abroad. Partic-

icularly in England, there was much interest in US politics and the assassination.

You recently went public with your knowledge after 50 years. What were your rea-

sons for doing so?

Everything that I would say is already in the literature about the assassination but I think there needs to be general knowledge of what people who were actually involved knew.

More than six million pages of classified evidence on the Kennedy assassination are go-
ing to be released by 2017. Are you interested in this knowl-

edge, or do you consider that chapter of your life closed?

There is a great deal of specu-

lation of what information these documents actually contain. I do not look forward to it but would be interested to know what could be learned from them.

Thank you very much for the interview.
New W&H office in China

SHANGHAI, China: During DenTech China, one of the largest events dedicated to the dental industry in Asia, Peter Malata, President of the W&H Group, officially opened the company’s new office in Shanghai at the end of October. According to W&H, the new office provides the potential for further expansion into the growing Chinese dental market.

The new office was opened on 24 October to improve both technical and sales support for the W&H product range. More than 20 local partners and distributors from the region were invited to the new office building, with the aim of strengthening partnerships.

Overall, the company’s Chinese subsidiary currently has more than 25 partners and distributors throughout the country. W&H hopes to increase this number in the future and to introduce many of the new products presented at DenTech China to the market.

In addition to this increased representation, local seminars and lectures supported by national universities and local dental associations will be offered.

German company Sirona repositions itself in Asia

SINGAPORE: Owing to its advanced business infrastructure and central location in the ASEAN region, Singapore has become an attractive corporate haven in recent years for dental manufacturers from around the globe. With its new regional office, the German full dental equipment provider Sirona is the latest addition to the country’s already large number of local dental businesses.

Located in the Standard Chartered Bank Building, now called 8 Battery Road after its address in Singapore’s financial district, the company’s newest subsidiary is intended to serve Sirona customers all over the South-East Asia region. In addition, it will provide hands-on training through a fully equipped showroom, where lectures and workshops led by clinical experts from around the world will be held on a regular basis, the company said.

Executive Vice-President of Sales, Walter Petersohn, recently told Dental Tribune Asia Pacific that the first workshops have already been scheduled for this year.

“In our showroom, customers and partners can gain a personal impression of our products and see how they can be cross-linked and integrated,” he said. “We would like the training facilities to be used as much as possible and to create a platform for the professional exchange of information. Therefore, we will actively offer our facilities to dental associations and study groups of dentists.”

Sirona is not new to the region. The company and its predecessor, Siemens, have been operating through a large network of dealers in both developed and developing markets in Asia for more than 40 years. In Japan, China, South Korea and Australia, the company has also been marketing and selling equipment through its own subsidiaries in recent years.

The main reason for establishing an office in Singapore, however, is the increasing significance of the ASEAN region as a core growth market with significant potential, Petersohn explained.

“We have had particular growth in the Asia Pacific region in recent years and see even more potential for growth,” he said. “Dentists in these countries have high standards, are open to new products and are willing to invest in quality that is made in Germany. With our new office, customers from the entire region can now easily con-
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In the past several years, the range of restorative materials available for dentists and dental technicians has increased remarkably. New technologies have made treatment processes more efficient and enabled dental professionals to fabricate reproducible and predictable restorations that blend into the natural oral environment harmoniously.

In direct restorative treatment with composite materials, the increment technique has so far been the gold standard. This technique requires applying the material in thin layers and curing these increments individually. Consequently, it is relatively time-consuming to place restorations. Quality issues also often arise, such as air bubbles between the layers, for example. The increased risk of contamination of the materials can also compromise the quality of the restorations.

Some manufacturers, however, offer composites that can be placed in the cavity in large (bulk) increments. Tetric N-Ceram Bulk Fill (Ivoclar Vivadent), for example, can be cured in layers of up to 4 mm thick. Similar significant and practical developments in the ceramic restorative materials sector have also contributed to the advancements in restorative dentistry. Thanks to the CAD/CAM processing technology, subtractive methods are increasingly replacing conventional additive procedures, such as the layering technique. The fabricated restorations are able to withstand strong masticatory forces owing to their very high stability. At the same time, they fulfil the aesthetic requirements of different clinical situations. Maintaining aesthetics within simplified prosthetic treatment processes

Explaining the use of a bulk-fill composite in combination with a monolithic ceramic

Patient case

A 19-year-old female patient presented to our clinic for the restoration of her osseointegrated implant in region 14 (Figs. 1 & 2). After the implant had been exposed, a mesial carious lesion was observed in the adjacent premolar (Fig. 3). In a first treatment step, a local anaesthetic was administered, the caries removed and a clean cavity prepared. A rubber dam was placed to prevent any contamination of the working area with saliva during the restorative treatment (Fig. 4). Then, the cavity dimensions were measured using a probe. The maximum depth was 4 mm, a perfect indication for Tetric N-Ceram Bulk Fill (Fig. 5), which would allow us to fill the cavity in only one layering step.

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posite was light cured, finished and polished as usual (Fig. 8).

Tooth 14 was finally prosthetically restored. Two weeks after the exposure of the implant, an impression of the dental situation was taken (Fig. 9) and an individualised hybrid abutment was planned to provide the basis of the restoration. For this purpose, an abutment was modelled, pressed (IPS e.max Press, Ivoclar Vivadent, HO) and then adhesively cemented to a titanium base (Multilink Implant, Ivoclar Vivadent). During the try-in of the abutment, the cervical margin and the emergence profile were examined (Fig. 10). Since no additional adjustments were required, the crown was fabricated (IPS e.max CAD, Ivoclar Vivadent, LT A2) and characterised with stains (Fig. 11). In the permanent cementation of the crown to the abutment, retraction cords were used to minimise the occurrence of excess luting material in the gingival area, as well as to allow the easy and safe removal of excess material after curing if required (Figs. 12 & 13).

Conclusion

The ongoing development of dental materials and processing techniques has greatly affected and changed restorative dentistry. Tetric N-Ceram Bulk Fill, which is light cured in 4 mm layers, simplifies direct restorative filling therapy with chairside composites. IPS e.max CAD, which is processed using CAD/CAM technology, renders the fabrication of restorations efficient. Furthermore, individualised ceramic layering is no longer required for certain indications.

In this case, the implant in the position of tooth 14 was restored with an all-ceramic restoration. Tooth 15 was restored with a composite filling (Fig. 14).

Although this indication does not seem to be as demanding as anterior restorations, patients expect natural-looking results nevertheless (Fig. 11). Therefore, both dentists and patients desire a simple and efficient procedure that will produce aesthetic results.
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