A new study by NYU dental researchers has uncovered evidence that pregnant women with periodontal (gum) disease face an increased risk of developing gestational diabetes even if they don’t smoke or drink, a finding that underscores how important it is for all expectant mothers— even those without other risk factors—to maintain good oral health.

The study, led by Dr. Ananda Dasanayake, Professor of Epidemiology & Health Promotion at New York University College of Dentistry in collaboration with the Faculty of Dental Sciences at the University of Peradeniya, Sri Lanka, eliminated smoking and alcohol use among a group of 190 pregnant women in the South Asian island nation of Sri Lanka, where a combination of cultural taboos and poverty deter the majority of women from smoking and drinking. The findings support an earlier study led by Dr. Dasanayake that found evidence that pregnant women with periodontal disease are more likely to develop gestational diabetes than pregnant women with healthy gums.

That study, which followed 256 women at New York’s Bellevue Hospital Center through their first six months of pregnancy, showed that 22 of the women developed gestational diabetes. Those women had significantly higher levels of periodontal bacteria and inflammation than the other women in the study. The findings were published in the April 2008 issue of the Journal of Dental Research.

More than one-third of the women in the new study, which was conducted over the course of one year, reported having bleeding gums when they brushed their teeth. The women were given a dental examination and a glucose challenge test, which is used specifically to screen for gestational diabetes. According to Dr. Dasanayake, those women found to have the greatest amount of bleeding in their gums also had the highest levels of glucose in their blood. Dr. Dasanayake, who presented the findings today at the annual meeting of the International Association for Dental Research in Miami, said that he expected the final data to show that between 20 and 30 of the women had developed gestational diabetes.

Gestational diabetes is characterized by an inability to transport glucose—the main source of fuel for the body—to the cells during pregnancy. The condition usually disappears when the pregnancy ends, but women who have had gestational diabetes are at a greater risk of developing the most common form of diabetes, known as Type 2 diabetes, later in life. Asians, Hispanics, and Native Americans are at the highest risk for developing gestational diabetes. All of the women in the Sri Lanka study were of Asian origin. Researchers in England are developing a new biometric technique that identifies the sound ear hairs create when ruffled by noise. If each person’s “ear sound” is unique, and stays the same over time, it could become a high-tech password to access accounts and cell phones.

That’s because “hearing is an active process—the ear actually puts energy into the incoming sound waves to replace energy lost as sound is absorbed by the ear’s structure,” says Stephen Beeley, an engineer at the University of Southampton, U.K. who is leading the research. “This process helps us hear things we otherwise wouldn’t.

Predicted in the 1940s but only confirmed with ultralow-noise microphones in the 1970s, ear-generated sound is evoked with a series of clicking noises. Anecdotally, experts say they can differentiate one ear from another, but it “has to be able to reliably recognize people over long time periods,” one scientist said. “For example, a fingerprint taken from a 20-year-old is still valid when they are 60.”
Sipping hot tea can cause throat cancer

PARIS: People who drink their tea piping hot run a higher risk of throat cancer than counterparts who prefer a cooler cuppa, according to an investigation published on Friday by the British Medical Journal.

Cancer of the oesophagus is linked especially to smoking and alcohol abuse but hot beverages have also been considered a risk factor, possibly because of damage to throat tissue. Interested in finding out more, Iranian researchers went to Golestan province, which has one of the highest rates of oesophageal cancer in the world.

Inhabitants there sip large quantities of hot black tea — typically drinking more than an liter per day person — but also have a low incidence of tobacco and alcohol use.

Those who drank hot tea (between 65-69°C) were twice as likely to develop throat cancer compared with those who drank warm or lukewarm tea, whose temperature was 65°C or less. Drinking very hot tea (at least 70°C) was associated with an eightfold increase risk compared with warm or lukewarm tea.

In an editorial, the Lancet said the study backed evidence that scorching fluids may cause damage to the throat’s epithelial lining and lead to cancer, although exactly how this happens remains unclear.

But it also said that there was no cause for panic, as most people tend to drink tea at a warm temperature. Previous studies in Britain have reported an average temperature preference of 56-60°C. It recommended that tea junkies wait at least four minutes before drinking from a freshly boiled cup.

Sports drinks may be tough on teeth

Though some might see sports drinks as a healthier alternative to soda, a new study shows that the citric acid they contain can damage teeth.

The finding comes from a study involving teeth from cows. New York University College of Dentistry researchers cut the teeth in half and placed them in top-selling sports drinks. After soaking for up to 90 minutes, which the researchers said simulated sipping on the drinks throughout the day, the enamel coating of the teeth was partially eaten away. This allowed the drinks to leak into the Bonelike material underneath the enamel, causing the teeth to soften and weaken.

The condition, called erosive tooth wear, can result in severe tooth damage and tooth loss, if not treated.

“Is this the first time that the citric acid in sports drinks has been linked to erosive tooth wear,” study leader Dr. Mark Wolff, chairman of cardiology and comprehensive care at the NYU College of Dentistry, said in a news release issued by the school.

The findings were to be presented Friday at the International Association for Dental Research general sessions in Miami Beach, Fla.

Perhaps surprisingly, brushing immediately after having a sports drink might actually cause more damage, Wolff said, as the softened tooth enamel is vulnerable to the abrasiveness of toothpaste.

“Those who drank hot tea (between 65-69°C) were twice as likely to develop throat cancer compared with those who drank warm or lukewarm tea, whose temperature was 65°C or less. Drinking very hot tea (at least 70°C) was associated with an eightfold increase risk compared with warm or lukewarm tea. In an editorial, the Lancet said the study backed evidence that scorching fluids may cause damage to the throat’s epithelial lining and lead to cancer, although exactly how this happens remains unclear. But it also said that there was no cause for panic, as most people tend to drink tea at a warm temperature. Previous studies in Britain have reported an average temperature preference of 56-60°C. It recommended that tea junkies wait at least four minutes before drinking from a freshly boiled cup.”

Tobacco used to produce medicine

Scientists have used tobacco to produce medicine for the treatment of a number of diseases, including diabetes.

Research published in the journal BMC Biotechnology details how genetically modified tobacco plants were used to produce medicines for several autoimmune and inflammatory diseases.

Experts set out to create transgenic tobacco plants that would produce biologically-active interleukin 10 (IL-10), a potent anti-inflammatory cytokine. They tried two different versions of IL-10 (one from a virus, one from the mouse) and generated plants in which this protein was expressed in different compartments within the cell, to see which would work most effectively.

The researchers found that tobacco plants were able to process both forms of IL-10 correctly, producing the active cytokine at high enough levels that it might be possible to use tobacco leaves without lengthy extraction and purification processes.

The authors claim they are keen to use the plants to see whether repeated small doses could help prevent type 1 diabetes mellitus (TIDM), in combination with other auto-antigens associated with the disease.

Commenting on the research, Professor Mario Pezzotti from the University of Verona, said: “Transgenic plants are attractive systems for the production of therapeutic proteins because they offer the possibility of large scale production at low cost, and they have low maintenance requirements.”

“The fact that they can be eaten, which delivers the drug where it is needed, thus avoiding lengthy purification procedures, is another plus compared with traditional drug synthesis.”

The article has been accredited by Health Authority - Abu Dhabi as having educational content and is acceptable for up to 2 (Category 3) hours of CME.

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President/CEO Yael Allaway y.allaway@dental-tribune.ae
Director mCME Dr. H. Mollin info@mcmegroup.com
Marketing manager Saadun Aliwarshe info@dental-tribune.ae
Production manager Hussain Alvi hussein.alvi@dental-tribune.ae
P.O. Box 4873, Dubai, United Arab Emirates, Tel: +971-2-2395692, Fax: +971-2-2395624
E-mail: info@dental-tribune.ae

Tonguing has actually helped reduce the bleeding. It also caused the harbened soft enamel. But it also said that there was no cause for panic, as most people tend to drink tea at a warm temperature. Previous studies in Britain have reported an average temperature preference of 56-60°C. It recommended that tea junkies wait at least four minutes before drinking from a freshly boiled cup. Because they contain infectious diseases of man and are caused by changes in the microbes nor-
April 26: International Seeds Day

Order 81: "Iraqi farmers shall be prohibited from re-using seeds of protected varieties."

Organizations, activists and people from various professional and linguistic backgrounds will observe April 26 as International Seeds Day (ISD) advocating for patent-free seeds, organic food and farmers' rights. ISD will be an educational day for the public to learn about genetically modified food and its health hazardous effects and the agribusiness of major US and European companies. In order to qualify for PVP, seeds have to be 'new, distinct, uniform and stable'. Therefore, the sort of seeds being encouraged to grow by corporations such as World Wide Wheat Company (WWW), Monsanto and others will be those registered under PVP.

According to Latha Jishnu, senior editor of Business Standard, “Five years after Order 81 was passed, farm activists across the world have got together to mark April 26 as International Seeds Day to help Iraqi farmers to break the vice-like grip of the global seed companies. The campaign is coordinated by the Institute of Near Eastern & African Studies (IN-EAS), based in Cambridge, Massachusetts, and has got the backing of some organisations in India. I met Wafa Al-Natheema of IN-EAS, when she was in India earlier in the year to drum up support for the campaign, and she says the world needs to respond to this threat to agriculture. Iraqi farmers, like the rest of the nation, are unaware of this law and how it could turn their world upside down. "They need our help to learn how to retain their seeds under these circumstances and how to lobby against this unjust law.""

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American Medical Association may investigate journal editors

CHICAGO (AP) — The American Medical Association is seeking an investigation of claims that editors of its leading medical journal threatened a whistleblower who pointed out a researcher’s conflict of interest.

Editors of the Journal of the American Medical Association deny threatening a professor who raised concerns about a study author’s undisclosed financial link to a drug company when JAMA published the study last year. JAMA, like most leading medical journals, has a policy of noting scientists’ industry connections.

According to the Wall Street Journal, JAMA editors threatened to ban the professor from their journal and ruin his medical school’s reputation if he didn’t stop talking to reporters.

The editors deny that. But the flap prompted them to spell out what amounts to a gag order on anyone who alerts the medical journal about suspicions that a researcher has undisclosed industry ties. The journal editors argue that any suspicions should be kept secret until JAMA can complete its own probe. That is an existing policy, JAMA’s editor-in-chief, Dr. Catherine DeAngelis, told The Associated Press on Monday.

JAMA journals are independent and the medical association doesn’t interfere with what they publish. But AMA said Friday it has asked an independent oversight committee to investigate how JAMA editors handled the issue.

“As owner and publisher of JAMA, we take these concerns very seriously,” AMA board chairman Dr. Joseph Heyman said in a written statement.

The issue involves a study published in JAMA last May that said the drug Lexapro prevents depression in stroke patients. A Tennessee University professor who reads JAMA told the editors in October that he had learned that a study author had served as a speaker for Lexapro’s maker. Though other industry ties were noted in the journal, that one was not. AMA editors vowed to investigate.

The professor, Jonathan Leo of Lincoln Memorial University, also discussed his concerns in a March 5 letter posted on a different medical journal’s website.

On March 11, JAMA editors published a correction revealing the financial ties to Lexapro’s maker. JAMA’s editors acknowledged in a March 20 editorial being upset about Leo airing his concerns. They argue that publicizing unconfirmed allegations about study authors’ conflicts unreasonably damage reputations and interfere with JAMA’s own investigations.

Confusion Over Osteoporosis Medication and the Affect on Oral Health

It has been estimated that over 10 million Americans have Osteoporosis; a condition that causes the thinning of the bone along with severe loss of bone density over time. Medications, specifically bisphosphonates are used to treat this often debilitating disease. Although these drugs effectively slow bone loss and possibly increase bone density reducing the risk of fracture, they have recently come under fire as reports have suggested the use of medications containing bisphosphonates may cause individuals to develop “bisphosphonate-associated” osteonecrosis of the jaw.

Considered to be a rare condition osteonecrosis of the jaw results in severe damage due to the temporary or permanent loss of blood supply to the jaw bone possibly causing pain, numbness, exposed bone, tooth loss, and infection.

The American Dental Association and the National Osteoporosis Foundation have teamed-up to provide patients with a brochure titled "Osteoporosis Medications and Your Dental Health," that will be available from dental offices this month. The goal is to separate fact from fiction by providing the brochure as a resource to patients that have become alarmed by the suggestion that their medication may be causing osteonecrosis of the jaw. In a press release Matthew Mossina, D.D.S., ADA Consumer Advisor states that "Patients who take bisphosphonates for osteoporosis are encouraged to talk to their dentist so that their dentist can show them good oral hygiene practices as well as monitor their oral health," adding stress to the point that "Patients should not stop taking their osteoporosis medications without speaking with their physicians."
What are the objectives of this Symposium?

The aim is to challenge the traditional core process and to put out some new ideas as to where we think the industry will be going over the next 5, 10 or 15 years. This is not something we would do every single year because the developments achieved are so far advanced that the industry doesn’t change enough to warrant 2 days here in beautiful Dubai every year.

The fact that all these orthodontics are still here and didn’t cancel their registration proves that they are all still interested in these new cutting-edge concepts from 3M Unitek.

It is quite unusual to be able to get this many orthodontics from across the world together all at the same time. Usually at dental conferences you would have a big group of general dentists so it is great to see so many specialist orthodontists, especially with the current economic climate.

How is the current economic climate impacting 3M Unitek right now?

Of course, this is an elective treatment so ultimately it’s not like heart surgery or something... you have straight teeth or you don’t. I think what we are seeing to a small extent, and I literally just relocated from the US, where the economic environment is very different, we saw doctors tending to purchase products when they needed them rather than build up a large inventory. From our perspective we have seen no slowdown at all in this region. We acquired the Incognito brand last year which is a very high end treatment in the Lingual side of the market. They continue to be a huge success in this region and certainly in mainland Europe this is probably the most expensive treatment you can have. It continues to be a great success and a great acquisition for us.

Even as we operate on the higher end of the market everything seems to be ok – the proof of having 500 doctors being prepared to travel from 40 countries here kind of says business is good - business is very buoyant.

As I mentioned earlier, it is an elective treatment so we always know there is always a risk with any treatment which is elective – it’s not bandages and it’s not tape, but its orthodontics.

You’re new to the region, Middle East and Europe - How are you looking forward in this market?

I have been with 3M and Unitek for 15 years and was in the US before I came here. The 3M Unitek range operates from the very top of the pyramid to the very bottom in terms of price perspectives and quality perspective - our intention is to be able to cover the broadest possible range of doctors as we can and we have done that with acquisitions recently.
Temporomandibular disorder (TMD) represents a multiplicity of conditions expressed in the temporomandibular joints, masticatory muscles, and the associated musculoskeletal system. Many of these conditions share common signs and symptoms with a conservative management approach. Therefore, it is important to identify the specific subcategory of TMD in order to develop a case-specific plan of care.

In addition, etiologic variables and the patient’s particular perception of pain, recurrence of pain, or other symptoms must be appreciated and understood by the treating practitioner. In order to successfully address the patient’s symptoms, the complete evaluation of each case must include historical, clinical presentation and review of psychological and social perspectives must be accomplished. Treatment outcomes can be enhanced by the understanding of the patient’s symptoms and management strategies that address all the components involved.

The development of a diagnosis-specific plan with a prioritized problem list is necessary to enhance the patient’s understanding of their condition. The primary goals of treatment of TMD are to: reduce or eliminate pain or other symptoms; restore a normal functional activity; allow the return to the activities of daily living; reduce the long-term health care needs for the patient; and minimize the effect of TMD on the patient’s quality of life.

A multi-disciplinary model that includes patient education and self-care, cognitive behavior therapy, physical therapy and orthopedic appliance therapy is considered as the foundation for the management of the vast majority of TMD patients. It is important to understand that the natural course of TMD does not reflect a progressive disease process, but rather TMD appears to be a complex disorder that is affected by a multitude of interacting factors serving to either exacerbate or resolve, or result in recurrence.1,9

Most TMD patients will obtain significant improvement of signs and symptoms with a conservative management approach. Many studies have supported that most TMD patients have not received medical or surgical treatment for their condition.10-13 Studies related to the surgical disorders have demonstrated that in patients with disc displacement (with or without reduction), the natural progression of the disease can allow for changes that are favorable for a significant number of patients in terms of function and symptoms.9

Involving the patient in the physical and behavioral management of his/her condition is essential in the treatment outcome. As clinicians in the development of an individualized plan of management, we must determine if intervention is necessary, if the condition is acute or chronic and what would be the prognosis of the condition with and without treatment. If intervention is in the patient’s best interest, then we determine if the degree and type of intervention should be a self-care versus a multidisciplinary approach. The most important aspect of self-care is the patient’s ability to carry out the treatment plan.

Patient education and self-care are focused on the patient’s knowledge, awareness, and ability to prevent further injury to the masticatory system and to allow for a period of healing. The success of self-care depends on patient motivation, cooperation, and compliance.2 The most important aspect of self-care is the patient’s compliance, thus enhancing the doctor-patient relationship.

Self-directed care typically includes limitation of mandibular function, habit awareness and modification, a home exercise program, and maintaining a soft diet. Promoting rest for the injured tissue, habit awareness and modifying the patient’s behavior promotes healing. Voluntary behavior modification may result in a significant effect in patients with myofascial pain.10

TMD Disorders: (Part 3 of 3)1 Treatment & Management Considerations

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TM Disorders: (Part 3 of 3)1 Treatment & Management Considerations

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Category| Generic| Brand| Dose (mg)
---|---|---|---
Salicylates| ASA| Bayer| q4h (500)
Salsalate| Easal| Bioloid| bid, tid (500)
Propranolol| Inderal| Daiichi| bid, tid (200)
Propionibacterium| Bupenfom| Merzen| qid (500-800)
Naproxen sodium| Naprosyn| 750 mg/5 L (500)
Naproxen sodium| Naprosyn| 750 mg/5 L (500)
Acetaminophen| Indocin| Indocin| tid (25-50)
COX 2 Inhibitors| celcoxib| Celebrex| bid, bid (12-25)

Table 1: Non-steroidal anti-inflammatory drugs

| Category| Generic| Brand| Dose (mg)
---|---|---|---
Non-steroidal| Ketoprofen| Medrol Dosepack| 4 mg tablets
| Non-steroidal| Ketoprofen| Medrol Dosepack| 4 mg tablets

Table 2: Steroids

Table 3: Antidepressant agents

Table 4: Muscle Relaxants

Generic| Brand| Dosage (mg)
---|---|---
Diazepam| Valium| q4h 5-10 mg
Clonazepam| Klonopin| 0.5 mg bid
Lorazepam| Ativan| 0.5 mg bid
Temazepam| Restoril| 15 mg qhs

Table 5: Antiepileptic agents

Generic| Brand| Dosage (mg)
---|---|---
Amitriptyline| Elavil| 10-75
Desipramine| Norprin| 10-50
Nortriptyline| Famelor| 10-75
Doxepin| Sinequan| 10-75

Table 6: Antidepressant agents

Generic| Brand| Dosage (mg)
---|---|---
Diazepam| Valium| 2-5 mg tid

Table 7: Muscle Relaxants

Generic| Brand| Dosage (mg)
---|---|---
Diazepam| Valium| 2-5 mg tid

Table 8: Muscle Relaxants


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or due to their action as a sedative, they play an important role in the treatment of TMD. Primary indications are for muscle spasm, acute muscle pain to help prevent the increased muscle activity associated with TMD.

Fleurt (cyclobenzaprine hydrochloride), which is similar chemically to tricyclic antidepressants, is the drug of choice for generalized chronic muscle pain. Fleurt has been shown to provide significant relief of muscle pain, and enhance the quality and quantity of sleep. Its combination with an NSAID can be a very effective tool in the treatment of acute TMD. Cyclobenzaprine is also used as a muscle relaxant. A list of commonly used muscle relaxants is shown in Table 4.

Antidepressants

These medications are helpful with chronic diffuse pain due to myofascial pain, especially when it has been recognized that sleep disturbance is a contributing factor. The analgesic properties of the tricyclic antidepressants are independent of the antidepressant effect. They have shown pain modification properties at therapeutic dosages much lower than those prescribed for antidepressant effect.

The therapeutic effect of the drugs is thought to be related to their ability to increase the availability of the neurotransmitters serotonin and norepinephrine at the synapse junction in the central nervous system. Studies have demonstrated their use also in the treatment of sleep related bruxism, tension type headache, migraine headache prophylaxis, fibromyalgia and various neurologic conditions.24,25

Side effects are mainly related to the anticholinergic activity that induces xerostomia, constipation, fluid retention and weight gain. Patients occasionally complain of sedation upon awakening. Contra-indications include cardiac arrhythmias, seizure disorders and patients suffering from panic attacks. Dosages should begin at the lowest level (10 mg) at bedtime and be increased each week only if needed and tolerated by the patient. Table 5 shows a list of some of the most commonly utilized drugs in this class.

Opioids

Typical indications for opioids in the TMD population include exacerbation of pain, postoperatively and in cases of overt trauma. These medications are best indicated for moderate to severe pain over a short period of time. Most common side effects are nausea, respiratory depression and physical dependence. Opioids may be considered in cases of pain refractory for appropriately integrated multidisciplinary care when properly monitored.

Local Anesthetics

Local anesthetics can be useful in the TMD population as a diagnostic tool and also in selective cases as a therapeutic modality.

Indications are as a diagnostic block and in the management of myofascial trigger points. Injections into skeletal muscle with local anesthetics that contain a vasoconstrictor can increase the toxicity of the solution.

Typically, lidocaine or carbocaine without a vasoconstrictor is recommended, especially when injected into muscle (to minimize myotoxic effects). Diagnostic anesthesia may be as simple as the usage of a topical agent, somatic blocks (infiltration, field blocks and division blocks), trigger points injections, temporomandibular joint injections and/or a sympathetic neural blockade.

Physical Therapy/Physical Medicine

The goal is to relieve musculoskeletal pain, restore normal function, reduce inflammation, coordinate and strengthen muscle activity and promote repair and regeneration of tissues. Rehabilitation of the compromised masticatory system may require various physical techniques.26 Close cooperation with a physical therapist/physical medicine practitioner who is well trained in the management of musculoskeletal disorders of the head and neck is essential.27-29

Massage

Massage over the painful areas is thought to produce an alteration in the sensory input that exerts an inhibitory influence on pain. It is used to reduce edema and to increase blood flow to the area.
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We are currently undertaking more revolutionary projects

An interview with Mectron, the company who invented Piezosurgery

Mectron, based in Italy, has revolutionised dental surgery with their development of piezoelectric bone surgery. Recently, the company presented the 5th generation of their Piezosurgery device at the IDS show in Cologne in Germany. We spoke with company founders Domenico Vercellotti, Fernando Bianchetti, as well as area managers Wolf Narjes and Alexandre Cadau, about the clinical advantages of their invention and how the company is reacting to the current market conditions.

“Piezosurgery has certainly been one of the most important developments in the dental and medical field.”

Dental Tribune: Market prospects for 2009 are rather uncertain due to the financial crisis. Is your company prepared for a potential economic slowdown?

Fernando Bianchetti: The only way to withstand this crisis is to remain successfully in the market through investments in scientific and technical research, in Europe and other countries.

Domenico Vercellotti: What Fernando just said has always been our corporate philosophy; it will certainly help us in difficult times like this. Mectron offers high quality products at reasonable prices and puts a lot of effort into the development of new technologies and not merely into expensive marketing campaigns.

Wolf Narjes: Being a family-owned company, Mectron is probably more flexible and manageable than larger companies. Therefore, we can react relatively quickly to unexpected market changes.

Have you already experienced an economic climate change in Italy and other markets?

Fernando Bianchetti: Since our company was founded in 1979, we have already had to go through occasional tough economic times. However, nothing really compares with the latest financial crisis.

Alexandre Cadau: Fernando is right. At the moment, we are experiencing a huge loss of confidence in all consumer groups. On the other hand, we have always been challenged by the depreciation of various foreign currencies, like in 1992 when devaluation hit many countries.

Your company is mainly known for its innovative Piezosurgery technology. What are the main advantages compared to traditional surgical technologies?

Domenico Vercellotti: Mectron invented piezoelectric bone surgery in collaboration with Prof. Tomaso Vercellotti almost ten years ago. Back then, it was not just another product; it was a significant innovation in the field of dentistry based on technical expertise and years of clinical research. Thanks to Piezosurgery, oral surgery evolved from traditional rotating instruments to a new system of cutting bone that spares soft tissue and accelerates the healing process.

Wolf Narjes: Our Piezosurgery device is scientifically approved and we are considered to be the only company in this field to have a clinical database on each available surgical instrument. All the clinical applications for the device have been studied, to ensure that there is no risk for users and patients and that the medical effects are always positive. Many companies have attempted launching similar products, but they are still missing scientific data or research regarding the effectiveness of their methods.

Would you tell us more about how Piezosurgery was developed and how it has been received in different markets?

Wolf Narjes: I have found that several countries, including South Korea, Italy, and Germany, have been very open-minded to this new technology. Most Scandinavian countries, however, have only begun to understand how to use this innovative technique.

Fernando Bianchetti: All the clinical protocols and techniques developed for Piezosurgery are based on scientific publications endorsed by universities and credible specialists in the field of dental surgery. They confirm not only the benefits for the clinician, such as maximum surgical precision and wider intra-operative visibility, but also those for patients who suffer from less postoperative pain.

Alexandre Cadau: Piezosurgery has certainly been one of the most important developments in the dental and medical field. This unique device allows the surgeon to work in less stressful and safe conditions. Postoperative healing times are also reduced three-fold with this method.


Training courses are regularly offered at the Piezosurgery Academy in Italy. Do you also offer courses in other parts of the world?

Fernando Bianchetti: The Piezosurgery Academy was established by Prof. Tomaso Vercellotti to give scientific support to the Piezoelectric Bone Surgery. It is managing the whole clinical research and training activities in Piezoelectric Bone Surgery and works independently from Mectron.

Wolf Narjes: It is essential to be suitably trained in this technique. Therefore, we offer courses in Europe, Asia, as well as North and South America. Last year, we opened a new branch in Phuket in Thailand that serves as the Piezosurgery training centre for the whole Asia Pacific Region.

Alexandre Cadau: There is a reason that training is crucial for Piezosurgery. Users experience a steep learning curve before getting used to the micrometric movement of Piezosurgery, which is completely different from the traditional techniques. We organise workshops in many countries around the world that help dentists learn the differences between Piezosurgery and conventional burs and saws. In addition, we collaborate with universities, to offer attending clinicians cadaver dissection courses that help them appreciate the surgical benefits.

“It is essential to be suitably trained in this technique.”

With four regional headquarters, do you consider yourselves a global cooperation?

Fernando Bianchetti: Certainly, our branches in Germany, India, and the Asia Pacific region report to our headquarters in Italy. In other countries, we have worked successfully with local dealers for almost ten years, in some countries even 20 years.
Wolf Narjes: If you mean: are we represented in all the important countries around the world, then definitely yes. Our network is well established in more than 80 countries, and our sales team is working daily to extend it even more.

How closely do the regional headquarters work with the headquarters in Italy?

Domenico Vercellotti: In Mectron’s corporate organisation, the regional headquarters represent points of information exchange and contact between the headquarters in Italy and local clinicians.

Fernando Bianchetti: They work very closely with our main headquarters in Italy for different reasons. Mectron Italy helps the regional headquarters and, of course, our other distribution partners to provide their customers with technical support. The staff at regional headquarters, as well as our distribution partners, are regularly trained by our engineers in Italy.

Alexandre Cadau: All Mectron partners receive marketing support through the headquarters in Italy. In this way, we ensure that all our staff and partners, whether an Italian dealer or South American distributor, keep up to date with the latest specifications and developments of our products.

Wolf Narjes: I have to add that although marketing is centralised, the structure of our company is still flexible enough to fulfill local demands.

Do you have offerings in other market segments as well?

Fernando Bianchetti: Let’s speak about the other products Mectron has been manufacturing for plenty of years like piezoelectric scalers, curing lamps and air polishers. Mectron was the first company to introduce on the market a scaler handpiece in titanium which has represented the new state of the art in life span and sterilization, as well as the first one to launch a LED curing lamp!

Wolf Narjes: Mectron has a lot of capacity for innovation. Therefore, our company is not only a leader in the field of the Piezosurgery technique, but also in the light curing segment.

Alexandre Cadau: We say we have succeeded to be a long-term market leader. As far as the production of LED curing lights is concerned, our company is still one of the biggest manufacturers worldwide.

Many companies are starting to extend their range of products. Are there any new products being developed that you would like to talk about?

Fernando Bianchetti: Apart from the further improvement of existing products, we are currently undertaking more revolutionary projects in our R & D department. A total of fifteen per cent of all staff working at Mectron are actually involved in this.

Domenico Vercellotti: Our mission is to implement new technologies for the dental market that are based on the latest evidence-based research. We will also stay on this track in the future to develop innovations that are economical and bring true clinical advantages.

Thank you all very much for the interview.
The amount of mercury in the wastewater of three dental clinics from United Arab Emirates over a period of 3 to 17 days was quantified using cold vapor-atomic absorption spectrometry technique. The total Hg concentration in the wastewater of these clinics ranged from 25 to 146 µg per day. The Hg concentration in the wastewater samples collected from the outlets of the dental chairs after dental treatments varies depending on the type of dental treatment: the average Hg concentration in the samples of only amalgam restoration is 39 µg per sample (std. dev. 37, range 4-142); for samples with amalgam restoration plus other types of dental treatment is 24 µg per sample (std. dev. 24, range <MDL-77); and for sample with no amalgam restoration is 18 µg per sample (std. dev. 16, range <MDL-55).

Introduction

Amalgam is the most commonly used dental filling material for more than 200 years (Arenholt-Bindslev & Larsen, 1996; Counter & Buchanan, 2004; Horsted-Bindslev, 2004). One of its major components, mercury, is of a particular concern due to its potential adverse effects on humans and the environment (Arenholt-Bindslev & Larsen, 1996; Counter & Buchanan, 2004; Horsted-Bindslev, 2004; Hylander & Goodsie, 2006). The estimated annual mercury consumption for dental applications is 5-4% worldwide (approximately 500 metric tons of mercury) (WHO, 1976; Mukherjee et al., 2004; Vandeven & McGinnis, 2005). Even though the use of amalgam as a restorative material has declined recently, the removal of this material from patient’s teeth and the subsequent discharge of it into the environment will continue as long as existing restorations remain in place and amalgam is continued to be used as a dental filling material. According to recent investigations, dental clinics appear to be responsible about appreciable amount (10-70%) of the daily mercury burden that has been released into the environment via sewage treatment plants (Hram mond et al., 2005; Adeghembo & Watson, 2004).

Mercury is known to bioaccumulate in fish and other living organisms and therefore can pose an environmental mercury burden on the entire food chain (Zhou & Wong, 2000; Berraz Nevado et al., 2005; Kennedy, 2005; Hylander & Goodsie, 2006). Among the groups that are directly exposed to mercury are the dentists and their patients, where significant increases in their plasma mercury concentration have been reported compared to those of control groups (Tezel et al., 2001; Harakeha et al., 2002; Jones et al., 2007; Zolfaghari et al., 2007). On the other hand, the public and the environment are indirectly exposed to this element via mercury emissions from incineration.
nated waste have been established in several countries. Current literature suggests that mercury emissions from dental clinics are reduced by an improved design of the waste discharge system, use of high pressure water cleaning, and frequent replacement of amalgam separators and filters (Vandeveer & McGeary, 2005; Hylander et al., 2006; Hylander et al., 2006). For example, Arenholt-Bindslev & Larsen (1996) reported that the use of Hg separators has reduced the amount of Hg in the wastewater from 270 mg Hg per dentist per day (range 95 to 842) to only 35 mg Hg per dentist per day (range 65 to 842) to only 35 mg Hg per dentist per day 1996; Arenholt-Bindslev, 1998; Hylander et al., 2006; Hylander et al., 2006. However, use of amalgam separators in dental clinics is still uncommon. Additionally, no data have been reported on the comparison of the mercury burden in the wastewater at UAE dental clinics. Another reason could be the fact that almost one third of the recycled wastewater is reused for irrigation in this region. Analyses of the collected samples was to quantitatively assess the mercury burden in the wastewater of some dental clinics in UAE. The results of this project will contribute to the efforts of the Ministry of Health in reducing the mercury concentration in the wastewater by taking appropriate measures on handling and discharging of dental clinics’ mercury-containing waste.

Materials and Method

Equipment

An atomic absorption spectrometer (Spectra A AA 220 FS, Varian) equipped with a PID generation accessory (VG-77, Varian) and a T-shaped quartz absorption cell was used for the determination of the mercury concentration. The instrumental parameters are listed in Table 2.

Reagents and Solutions

All chemicals were of analytical reagent grade unless stated otherwise. All water used was obtained from a Milli-Q reagent system (resistivity 18.2 MΩ cm, Milli-pore, Bedford, MA, USA). All plastic and glassware was soaked in 4M nitric acid for a minimum of 12h, washed with distilled water and finally rinsed with Milli-Q water before use.

Nitric acid (88.0-70.0%) and sodium chloride (99.5%) were purchased from Panreac Quimica (Barcelona-Spain), sulfuric acid (H₂SO₄ 95.0%), hydrochloric acid (HCl 37.0%), hydroxylamine hydrochloride (NH₂OH.HCl) and potassium dichromate (K₂Cr₂O₇) from BDH (England), potassium persulfate (98.0%) from Huka (USA), mercury (calibration solution) purchased from Sigma (210 µg/L HgNO₃, 2mL/1HNO₃) from RDH (England), and CRM from High Purity Standards (Calloway's lock solution at 10.5% to 27.0%, Charles-Lea., USA). Stannous chloride (25% w/v) was purchased from Aldrich and added to a volume of 20 mL of conc. hydrochloric acid. The mix was heated to dissolve the stannous chloride then allowed to cool before diluting the solution to 100 mL with water and mixing.

Sample Collection

Samples were collected in acid-washed plastic containers from three clinics. Samples No. 1-19 (1-10 from each clinic) were sampled from clinic 1. A total of 19 samples were collected from clinic 2. A total of 18 samples were collected from clinic 3. There were no samples collected from clinic 1 after 1996 and clinic 3 after 1995.

Analysis

The objective of this work was to determine the mercury concentration in the wastewater of the recycled wastewater from various clinics in UAE along with the type of treatment undertaken. The accuracy of the method was also checked by spiking two of the wastewater samples each with 20.0 µg Hg/L, 50.0 µg Hg/L and the spike recovery was between 106 and 112% (see Table 2).

A more detailed study involving larger number of fully operational dental clinics has been performed before an accurate assessment of the extent of Hg release from dental clinics in UAE can be made. In conclusion, the concentrations of Hg in the wastewater of investigated dental clinics, although small, re-emphasise the fact that dental clinics are considered a source of Hg pollution in the environment. In order to control the emission of Hg from dental clinics, it is recommended that local authorities introduce new regulations concerning the release of Hg into the environment including the installation of amalgam separators in all dental clinics.

References


Table 2: Mercury concentration (µg/L) and amalgam in dental clinics wastewater samples collected from various clinics in UAE along with the type of treatment undertaken.

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<thead>
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<th>Sample No. Type of treatment</th>
<th>Hg concentration, µg</th>
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<tr>
<td>1-19</td>
<td>amalgam restoration</td>
<td>39.8 ± 11.7</td>
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<td>20-34  amalgam restoration + others</td>
<td>24 ± 4.3</td>
<td>&lt;MDL - 25</td>
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<td>32-36 no amalgam restoration</td>
<td>18 ± 2.3</td>
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Table 3: The average, standard deviation (STD) and range of Hg mass in samples vs. Type of dental treatment

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University of Sharjah Champions of the AEEDC Dental Students Quiz

The College of Dentistry of the University of Sharjah was awarded the championship of the University of Sharjah was the champion of the AEEDC 2009 Dental Students Quiz competition. The college was represented by five 4th year dental students: Amjad Hassan, Dina Saleh, Shamsa Reem Abdalaha, and Yasser Hamdan. The competition aimed at testing the knowledge of students in the dental and clinical sciences.

The students from the College of Dentistry of the University of Sharjah performed very well and stand out significantly when compared to other dental schools in the region. According to Prof. Rami Sasmun, Dean of the Dental College, the curriculum of the Sharjah Dental College is a modern problem-based curriculum that is able to develop students’ knowledge and skills at a high level and understand the science behind patient care. This new teaching-learning method has enabled the university is proud to have a noticeable participation during AEEDC 2009, whereby seven faculty members from the college: Prof. Rami Sasmun, Dr. Sausan At Kawsar, Dr. Nanal Awad, Dr. Aziza Hussain, Dr. Gopinath, Dr. Soohil and Dr. Kauser, have presented lectures, posters and free communications.

The students won a trophy and a prize of AED 1,000 for each one of them and they will receive a free admission into the conference AEEDC 2010 next year. Besides the championship that the students achieved, the university is proud to have a noticeable participation during AEEDC 2009, whereby seven faculty members from the college: Prof. Rami Sasmun, Dr. Sausan At Kawsar, Dr. Nanal Awad, Dr. Aziza Hussain, Dr. Gopinath, Dr. Soohil and Dr. Kauser, have presented lectures, posters and free communications.

Sharjah University students being able to answer the questions in the competition exceptionally well although they are only in the fourth dental year of the program whereas all other dental schools sent their fifth year (final year) students for the competition. The students won a trophy and a prize of AED 1,000 for each one of them and they will receive a free admission into the conference AEEDC 2010 next year. Besides the championship that the students achieved, the industry and that’s what Dimas, marketing manager for 3M Unitek, Middle East and her team do – that’s what every one of our teams do. They’ll work very closely with those from the dental profession.

Is your plan to host the 3M Unitek Symposium every year? Someone asked me this question earlier on and I pointed out that we are talking about the future here – we very much put this out there as we are going to put some challenges in place. There, I am not convinced you can do this every year because I think you have to have material that is attractive to doctors because it’s expensive to travel around the world.

At this conference we are not purely selling everyone to ‘buy our product’ – this is not what we are about, so I think it would probably be more feasible to hold the conference every 18 months, but if you do that this, Iand developments have been identified. Finding the right location would be pretty difficult to make it as exciting as Dubai every year, I’ve got a lot of locations – none of them are quite Dubai!

Who do you see are 3M Unitek’s competitors in the region and how do you see their developments competing with yours?

One advantage of being part of 3M worldwide is the global reach we have, which none of our competitors have. For example just now I had a conversation with our sales manager in Latvia and it’s easy for us to do business in Latvia because 3M is already there. None of our competitors have this footprint, so when we go out and look at new business and new business opportunities our global presence is a huge benefit for us. I don’t have sleepless nights about our competition; I think we are a very strong organization and 3M is a brand which says quality. The growth in the Middle East has been incredible over the last few years. I remember when we were just in 4-5 countries, to now be 22 plus countries – it’s amazing. The industry has also changed considerably.

So what’s next for 3M Unitek?

Right now we are focusing on our new Lingual Orthodontics In-cognito, the braces on the inside of the mouth, revolutionizing orthodontics. The benefits of these braces are incredible. If you talk about aesthetic orthodontics – then Incoeto is truly an aesthetic phenomenon. We can make braces that are clear or ceramic, but when you actually have the braces on the inside of the teeth – I mean, that is as aesthetic as you can get. I think a huge driver there…

I think the opportunities in digital orthodontics in producing an appliance that really taps in to technology that’s already there. Digital Imaging … will be a very powerful over the next coming years.

We continue to spend a lot of time within education and dental practices and hospitals which is very important to 3M Unitek’s future development.

The orthodontics industry is moving towards digital. Digital will become huge in orthodontics and here at 3M Unitek we are at the forefront of the developments. At this symposium we will be doing a workshop on digital dentistry – we definitely will have more to say on the field of digital dentistry in the future, perhaps even at the next symposium.

I am very happy to be back this time – it’s a great time to come back – it’s very exciting. Remember when first started at 3M, the little office in Switzerland with 10 of us – it’s absolutely incredible where we have come to it – really does get my heart in a way to see how strong the company is. Exciting times ahead – really exciting times. Thank you very much.
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Smile-on: New Post-Graduate Programme Reveals the Future of Dental Learning

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Online technology offers a host of cutting edge options when it comes to learning. Leading organisations are embracing the exciting possibilities of delivering more convenient, flexible and innovative programmes. The ability to cross international boundaries and bring the world’s best minds together will promote progress in research and evidence based development, raising the bar in terms of academic and clinical standards to the benefit of dentists and patients alike.

Smile-on has united with one of the world’s leading academic institutions, the University of Manchester, to introduce the new 2 year part-time MSc course in Restorative and Aesthetic Dentistry and the ultra-modern approach indicates the future of how healthcare qualifications may well be gained.

The majority of the course will be accessed online, promoting self-motivation and a responsible approach to learning, empowering students to take control of their own progress and revealing the exciting direction of state-of-the-art education. Standing out as a truly special, world-class programme, the MSc invites students to attend residential gatherings in various fantastic settings around the world.

The programme is designed to encourage the student to take responsibility for his/her own learning. The emphasis is on self-directed learning approach. Quality of content is paramount. The MSc in Restorative and Aesthetic Dentistry for instance is packed with 42 informative and rewarding modules spread across 7 core units, which are:

- Unit 1: Foundations of 21st Century Practice – covering anatomy, basic disease processes, imaging and radiology, and more.
- Unit 2: Aesthetic Considerations – covering clinical photography, facially-driven treatment planning, medico-legal aspects and more.
- Unit 3: Anterior Aesthetics – covering aesthetic recontouring, anterior direct composite, bleaching, bridges, crowns and more.
- Unit 4: Posterior Aesthetics – covering bridges, crowns, direct composite, inlays and onlays.
- Unit 5: Complex Treatment – covering delivery of complex cases, fixed replacement, interdisciplinary treatment, tooth loss and rehabilitation.
- Unit 6: Research Methodology – covering research methodology and statistics.
- Unit 7: Research Project/Dissertation

For more information on the MSc in Restorative and Aesthetic Dentistry from Smile-on and Manchester University, launching May 2009, please call 00 44 (0) 27400 8989 or email info@smile-on.com

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This innovative programme establishes the academic and clinical parameters and standards for restorative and aesthetic dentistry. Students will leave with a world recognised MSc.