Is there new hope for periodontal patients?

By Jeanne R. Bosecker, BSN, RDH

As clinical dental hygienists, we want our patients to be as healthy as possible. This means having the skills and knowledge to treat them as effectively as possible. When a patient presents with periodontal disease, scaling and root planing with or without osseous surgery are the modalities for treating this condition.

However, what about the cases that do not respond well to these treatments? It is important for us to keep ourselves aware new treatment developments that may provide some more hope for these patients. This could involve looking outside the dental field. I learned about this new treatment for osteoporosis from a patient of mine who is an orthopedic physician.

We are all aware of the bisphosphonate drugs for treating osteoporosis and the potential for complications they bring. A new drug for osteoporosis has been shown to regenerate bone. Teriparatide, marketed under the name Forteo, is a parathyroid hormone injection taken once a day. Forteo is used to treat osteoporosis in cases that do not respond to traditional treatments. It has just recently been introduced and is still very expensive for the patient, so bisphosphonates are still the first choice for the treatment of osteoporosis.

Forteo is the portion of human parathyroid hormone (PTH) amino acid sequence 1 through 34 of the complete 84 amino acid molecule. PTH is the primary regulator of calcium and phosphate metabolism in bone and the kidneys. PTH increases the serum calcium partially caused by bone resorption. Thus, chronically elevated levels of PTH can lead to depleted bone stores, however, intermittent exposure by a daily 20-microgram injection will activate osteoblasts more than osteoclasts.

What fuels the $1.6 billion dental hygiene market?

The answer: teeth whitening and digital cavity detection

According to a new report series by iData Research, the leading global authority in dental market research, the U.S. dental hygiene and oral care market, which includes instruments and consumables used in the office setting, recovered from the economic recession in 2010 to reach over $1.6 billion.

By 2017, the market will reach over $2 billion driven by the rapidly growing digital caries/cavity detection, professional teeth whitening and fluoride varnish segments. In the United States, dental caries/cavities affect more than 95 percent of the adult population.

“Sales of specialized light-emitting diode (LED) and fluorescence laser-based digital caries detection devices, which enhance the ability to detect dental decay with greater accuracy and specificity, is driving dental hygiene market growth,” says Dr. Kamran Zamanian, CEO of iData Research. “In 2010, this market grew almost 50% led by Acteon, Air Technologies and Kavo.”

The report also states that the professional teeth whitening segment is expected to see strong growth through 2017, due to increased sales of professional take-home whitening systems, in which dentists fabricate custom trays for use at home. These products are considered more convenient and preferred by dentist and patients. In 2010, Discus Dental, Ultratent and SDI led this market.

“The professional fluoride market will be another area of strong sales growth, reaching double-digit rates by 2017,” says Dr. Zamanian. “This segment is being driven by sales of fluoride varnishes, which is growing in popularity among dentists and patients due to the products mild taste, easy application, reduced risk of over-ingestion, its ability to treat tooth hypersensitivity and a shorter treatment time. 3M ESPE dominates this market, however smaller competitors such as Varnish America have released lower-priced varnishes that have received positive reviews.”

More information is available at www.idataresearch.net/idata/registration.php. iData’s 2-report series on the U.S. and European “Markets for Dental Hygiene and Oral Care 2011” covers: dental handpieces, scalers, lasers, prophylaxis angles and pastes, oral irrigators, dental guards and more.

About iData Research

iData Research is an international market research and consulting group focused on providing market intelligence for dental and medical device companies. iData covers research in: dental implants, equipment, BGS, prosthetics and more.

(Source: iData Research)
Opalescence was a proud sponsor of the 2011 Mrs. Globe Pageant on Aug. 27, 2011 in Rancho Mirage, California where over 40 delegates from around the world joined in competition for the Mrs. Globe title. While Mrs. Russia, Alisa Krylova, received the winning crown at the close of the event, every delegate proudly displayed their beautiful Opalescence whitened smile throughout the evening.

Founded in 1996, Mrs. Globe is the largest international pageant for “Misses” in the world celebrating beauty and cultural differences.

The organization’s motto: “where the power of beauty changes the world” exemplifies the desire to celebrate family, culture and beauty. Opalescence became a sponsor of the event because of its shared goal and endorsement of the event’s WIN Foundation, a non-profit outreach that specializes in abuse and self-esteem recovery.

For more information on Opalescence teeth whitening, please contact Opalescence at (800) 552-5512 or visit www.opalescence.com.

Visit www.mrsglobe.com to preview the Opalescence-whitened smiles from the 2011 Mrs. Globe final event.

Opalescence was approved by the FDA on November 26, 2002, for the treatment of osteoporosis in men and post-menopausal women who are at high risk for fractures. The drug is also approved to increase bone mass in men with primary or hypogonadal osteoporosis who are at high risk for fractures. It is the first, and to date only, FDA-approved agent for the treatment of osteoporosis that stimulates new bone formation.

When I heard about Forteo I was interested to see if any studies had been done on the regeneration of alveolar bone. Could you imagine: A drug that could regenerate bone in the jaw could potentially cure periodontal disease? How exciting for our patients.

It turns out there is only one study, conducted at the University of Michigan, “Teriparatide and Osseous Regeneration in the Oral Cavity,” the study had 40 participants with severe, chronic periodontitis who had undergone periodontal surgery and received daily injections of teriparatide or placebo, with oral calcium and vitamin D supplementation for six weeks. The patients were followed for one year.

Primary outcome was radiographic linear measurement of alveolar bone level. The mean linear gain in bone at one year in the teriparatide patients was 28 percent versus 3 percent in the placebo patients. Reduction of periodontal probing depth was 55 percent versus 20 percent and a gain in clinical attachment level of 22 percent versus 7 percent. Teriparatide, as compared with placebo, was associated with improved clinical outcomes, greater resolution of alveolar bone defects and accelerated osseous wound healing in the oral cavity.

No adverse reactions were experienced in this study, but the sample population was very small. Teriparatide was shown in animal studies to increase the risk of osteosarcoma. This is the biggest risk of taking Forteo, and it is a pretty serious one. Patients with a history of Paget’s Disease of bone or unexplained elevation of serum alkaline phosphate, open epiphysis or prior radiation therapy involving the skeleton should not take Forteo. Patients taking Forteo should not smoke or drink alcohol, and the most commonly reported side effects are nausea, leg cramps and dizziness.

Forteo is definitely a promising method for treating periodontal disease, but the risk of bone cancer is definitely something patients and practitioners need to consider. We must remember as clinicians that our traditional methods have had success and should be utilized first, and Forteo can be used in the cases that do not respond to scaling and root planing or periodontal surgery.

Forteo certainly will change how we view periodontal cases, but at this time it is a risky treatment and has not been studied enough with periodontal patients to say for sure that it will eradicate periodontal disease.

The introduction of this drug and the potential for new modalities of treatment do offer some promise for our patients, but we need more information.

More studies need to be done and more information gathered before we can decide if Forteo is an appropriate treatment for resistant periodontal cases. Hopefully, we will be hearing more about this drug and how it relates to dentistry in the future.

In the meantime, we will continue to provide our patients the best care we can using our traditional methods. The future is bright for dentistry.

References
4. Forteo: teriparatide (rDNA origin) injection.

About the author

Jeanne R. Bosecker, BSN, RDH, is a private-practice dental hygienist living in the Chicago suburbs. After graduating from nursing school, she found her life passion in dentistry after working as a dental assistant for several years. Since graduating with her dental hygiene degree, she has worked for three small general dentistry practices. You may contact her at, jeannebosecker@comcast.net.
Ergonomic and/or lightweight handpieces may help to reduce the risk of certain musculoskeletal disorders (MSDs) such as carpal tunnel syndrome (Dong 2006). Advances in technology have provided improvements in ergonomics; thereby, helping to extend the longevity and careers of dental professionals. Improved technology along with normal and neutral positioning of the body, spine and hands will work together for positive health.

Over the years, poor posture can affect the musculoskeletal system, which can lead to other complicating health factors. Although, poor posture habits have been created throughout life, it is not too late to learn ergonomic principles that can contribute to a long-lasting, pain-free way to practice with less fatigue. Learning and practicing good posture while working should be one of the primary goals for increasing and continuing work efforts.

Another effort on the behalf of the clinician is to engage and embrace new technology and allow that technology to work for you. Many clinicians are intimidated by technology and hesitate to make changes, although these changes are for the best.

Repetitive stress injuries (RSI) are defined as cumulative trauma disorders resulting from prolonged repetitive, forceful or awkward movements. These movements result in damage to the muscles, tendons and nerves (Nainzadeh 1999).

Because clinicians are at risk for developing wrist injuries, ergonomic considerations are very important. The correct grasp on instruments, power scalers or dental equipment will help prevent RSI. The use of powered scaling devices is one of the prevailing recommendations for reducing these injuries. Ergonomically designed ultrasonic equipment includes scaling units with rotating cables and inserts with balanced handpieces. Power scalers must have a light modified pen grasp.

The advantages of the light grasp are tactile sensitivity, patient comfort and reduced fatigue. In addition, the clinician has the advantage of rolling the handpiece between the fingers to have continuous access to the tooth surface, line angles and interproximal and subgingival areas. In other words, the equipment is doing the work; the clinician is guiding it.

Another area of concern is the management of the cords coming off handpieces, equipment and units. Equipment that must have a power cord revisits the fact that improper management and poor design of the cords can increase drag on hand, wrist and arm. This in turn increases the risk of repetitive injuries, as your fingers must continually counter the force of the cord drag.

The new Midwest® RDH Freedom® handpiece is cordless, balanced, lightweight and easy to maneuver. Because of the diameter of the handpiece and lack of a cord, it takes less of a pinch grip and no drag to set up ergonomic advantages. This allows the hygienist to take any position around the patient’s head to maintain proper ergonomic angles in the arm and wrist. Combine these features with the cordless foot pedal and it predicts less fatigue and better ergonomics.

In a survey with hygienists, 100 percent of the hygienists approved of the weight of the cordless handpiece with the attached disposable prophy angle. In addition, 90.9 percent found that the Midwest RDH Freedom handpiece was easier to maneuver than a corded device. 93.9 percent of hygienists rated their fatigue light to none at the end of the day using the Midwest RDH Freedom handpiece versus only 53 percent indicating light to no fatigue when using their current polishing handpiece. A remarkable difference!

Modern technology supports ergonomics, and therefore, aids in promoting the longevity of the clinician and comfort for the patient when supported with proper posture and technique. Many times technology is not maximized to the fullest, therefore, limiting the benefits. Take advantage of modern advancements in engineering and design and allow your equipment to work for you.

References