Dentin hypersensitivity is a painful dental condition often left untreated. Prevalence of dentin hypersensitivity in the adult population can range from 8 to 50 percent, with the majority of the sufferers between 25 and 45 years of age. Therefore, a clinician will see, on an average day, between one and three patients who show varying degrees of sensitivity. The condition is slightly more prevalent in women and periodontally involved patients.

With the population aging and keeping their teeth longer, there is an increased incidence for dentin hypersensitivity, recession and periodontal disease. Currently, the majority of this older population is on medications that cause xerostomia. Differences in salivary flow or composition may contribute to the development of hypertensive dentin by affecting the formation of the smear layer. The occurrence of pain from hypersensitive dentin can occur when patients brush their teeth, use dental floss, eat cold (or hot) foods, drink iced beverages, breathe in cold air and/or eat sour, acidic, sweet or sugary foods.

The hypersensitivity mechanism

The exact mechanism of pain transmission from the tooth surface to the pulp has not been completely proven, however the hydrodynamic theory proposed by Martin Brännström in 1963 has been the most widely accepted. Fluids move within the dentinal tubules in response to external stimuli. The fluid movement transduces physical stimuli at the surface and stimulates mechanoreceptors, thought to be the A-delta fibers, found around the odontoblast process near the pulpal end of the tubule. The fluid in the tubules may expand with heat and contract with cold. The fluid flow in turn excites nerve terminals at the inner ends of the tubules or in the outer layers of the pulp. This excitation of intradental nerves acts on the central nervous system and causes pain. There are five different types of stimuli that can trigger pain when dentin is exposed: tactile (mechanical), chemical, thermal, osmotic and bacterial.

Tactile stimulation can be attributed to toothbrush bristles or filaments, friction from dental clasps or prosthesis, and metal objects such as eating utensils or dental instruments.

Chemical stimuli are possibly the most overlooked triggers of dentin hypersensitivity. Acids present in many foods and beverages, such as citrus fruits, vitamins, condiments, spices, wine, sauces and carbonated drinks should be suspect more than any other stimuli of dentin pain. Acid foods and drinks have been shown to soften dentin and may remove deposits on the dentin surface. Ascorbic acid, from chewable vitamin C tablets, can even be a stimulus. Up to 90 percent of individuals suffering from dentin hypersensitivity report that the effect of a thermal stimulus, particularly a cold stimulus such as breathing through the mouth on a cold day or consuming a cold drink, causes the painful sensation associated with sensitive teeth.

Osmotic flow within the dentinal tubules is important; there may be variations in the way in which different stimuli affect fluid flow. Bacteria produce acid when fermentable carbohydrates are available; it is this acid by-product, as it relates to demineralization or root caries, which can also cause sensitivity. An increase or decrease in sensitivity may be attributed to the mechanisms of metabolic breakdown and products the bacteria produce. Related to periodontal disease, it is known that periodontal pathogens can penetrate dentinal tubules a considerable distance. Once in the tubule, the bacteria may create a continual source of sensitivity.

Patients with sensitive teeth often have larger, more numerous caries. Early childhood caries is one of the most common diseases in this age group, according to the CDHA. By conservative estimates, it affects more than one out of seven preschoolers and over half of California's elementary school children. “Poor oral health not only results in cavities but sets in motion the potential for long-term health risks,” said Von Essen.

Poor oral health has been associated with heart disease, diabetes, potential strokes, along with low birth weight and preterm deliveries, she said. Oral health problems can also lead to pain, poor nutrition and development, impaired speech, loss of employment, time away from school, and low self-esteem.

To combat these problems, CDHA is reminding parents, guardians and caregivers to observe a few simple rules:

• Make sure each child has a dental visit by his or her first birthday.
• Children should not fall asleep with a sippy cup or bottle containing anything other than water.

According to many dental health care experts, more should be done to improve the oral health of the nation's youngest patients. One group, the California Dental Hygienists’ Association (CDHA), says protecting the smiles of young children requires a year-round commitment, not just a monthlong event.

“Taking a month to spotlight this issue is a wonderful opportunity to better educate parents and the public,” said Daphne Von Essen, president of the CDHA, commenting on the recent National Children’s Dental Health Month, which was held in February. “But this really needs to be something we as a society focus on 365 days a year because we have millions of California children suffering from insufficient oral health care.”

According to the CDHA, the most vulnerable Californians are children in low-income families who have limited access to dental care, lack of dental education and nutritional needs — all of which result in a high cavity rate in children. The greatest racial and ethnic disparity is seen among children ages 2 through 8, especially in Hispanic, African American and rural communities.

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• Make sure each child has a dental visit by his or her first birthday.
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“The decay is the most common disease for children,” Von Essen said.

“Train Your IMPLANT Team

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Dear Reader,

I have been thinking slightly outside of the box with my clinical practice for about six years now. My thoughts began to take a different direction after I was exposed to an amazing hygiene meeting and the hygienists in attendance. I returned from that meeting rejuvenated and vowed I would switch things up a little bit. This was a difficult undertaking for me because I am a very traditional thinker. The first thing I did is begin practicing without any ceiling lights in my operatory. While my patients loved it, the dental assistants thought I was “off my rocker!” It took her a while to try this concept, but once she did, she (and the dentist) was sold. Now they can’t imagine practicing with the lights on!

Since this time I have incorporated more small steps to incorporate a bit of “Spa Hygiene” into my practice. Patients are treated to a back massage while getting their teeth cleaned. A bolster pillow is placed under their knees to conform their lower back to the chair and the massage pad. An extra pillow placed under their neck provides support while their neck is arched. A fleece blanket is available for those who feel chilled while receiving treatment.

Patients have become so accustomed to these small additions we have incorporated them into the other hygiene operatory. Patients enjoy coming to their appointment. It is a time to rest and relax. Many times, they don’t want to leave.

Our office staff has created a special niche because I ventured outside of the box with my clinical practice. Patients are treated to a time to rest and relax. Many times, they don’t want to leave.

Don’t be afraid to open your mind to something out of the ordinary and try something new. It may be the beginning of something amazing!

Best Regards,

Angie Stone, RDH, BS

Hygiene Tribune! Please send stories to Group Editor Robin Goodman at r.goodman@dental-tribune.com.
sitive Teeth Gel Toothpaste, Rembrandt Whitening Toothpaste for Sensitive Teeth and Orajel Sensitive Pain Relieving Toothpaste for adults.

All of these toothpastes contain fluoride to strengthen dental enamel and protect against cavity formation.

To ensure maximum compliance, patients should be advised to select desensitizing toothpaste similar to their current preference — be it whitening, baking soda, gel or tartar control, or a specific flavor (such as fresh mint).

Patients should be advised to read and adhere to the labeling found on the product packaging.

References