

Consensus-Based Recommendations for the Diagnosis & Management of Dentin Hypersensitivity

A GROWING ISSUE

Recent research on dentin hypersensitivity reveals that **79 percent of dental professionals believe the condition is on the rise, and 88 percent say it can affect patients' quality of life.** Despite these statistics, many dental professionals do not routinely screen patients for the condition, causing it to regularly go undiagnosed.



In order to help dental professionals learn how to assist patients with this troublesome condition, a team of academic leaders has issued a new report, "Consensus-Based Recommendations for the Diagnosis & Management of Dentin Hypersensitivity." The report aims to clarify the issue and help clinicians define, diagnose and treat dentin hypersensitivity. This newsletter summarizes the findings of the report.

[Click here](#) to download the complete report and to learn more about the treatment and prevention of dentin hypersensitivity.

THE EXPERTS' CONSENSUS ON TREATING DENTIN HYPERSENSITIVITY

- Prevention is the most cost-effective treatment option.
- A dental professional's first recommendation should include cessation of predisposing destructive habits and the twice-daily use of a desensitizing dentifrice. This has been shown in clinical trials to improve hypersensitivity and increase in effectiveness over time.
- Tray application of potassium nitrate can be an effective episodic treatment.
- If, after using a desensitizing dentifrice, the patient's dentin hypersensitivity remains a problem, clinicians should reevaluate the differential diagnosis and consider in-office treatments beginning with topically applied desensitizing agents.
- A periodontist should be consulted before placement of restorative materials on the roots to assess the potential for future use of gingival grafts for root coverage, as placement of any bonded restoration prior to grafting may diminish the success rate of such procedures.

Please see the back page of this newsletter for an easy-to-reference flowchart of the experts' recommended treatment plan.

A PANEL OF LEADERS AGREES

At a discussion held during the 2008 ADA Annual Session, attendees from leading dental organizations, including the American Dental Association, World Dental Federation, American Dental Education Association, and the American Dental Hygienists' Association, discussed the data in the report and agreed on the importance of sharing its findings with colleagues worldwide. Additionally, one of the report's authors, Dr. Connie Drisko of the Medical College of Georgia School of Dentistry, emphasized the importance of collaboration between industry and educational organizations in order to perform research and disseminate information on today's pressing dental issues, including dentin hypersensitivity.

Three Factors of Modern Lifestyles that Contribute to Dentin Hypersensitivity

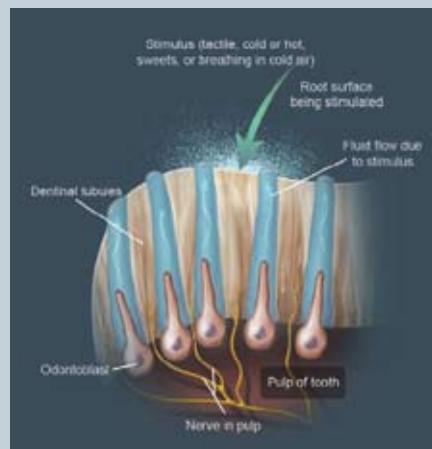
As American dentistry has strived to bring the diseases of infectious origin, caries and periodontitis, under control, a new set of conditions is emerging—as a consequence of the 21st century lifestyle. Gingival recession may well be caused by overly enthusiastic oral hygiene, and acid wear may be becoming more prevalent in all ages due to the modern acid-containing diet. Both of these conditions lead to exposed dentin, which under the right circumstances, leads to the initiation of dentin hypersensitivity—their sole and common symptom. Furthermore, vital bleaching is a treatment of ever-increasing commonality in the age of esthetic dentistry. The successful use of potassium-containing products to treat tooth sensitivity justifies the thorough treatment of the clinical condition.

DEFINITION

Dentin hypersensitivity is best defined as a short, sharp pain arising from exposed dentin in response to stimuli typically thermal, evaporative, tactile, osmotic, or chemical, and which cannot be ascribed to any other form of dental defect or pathology.

MECHANISM OF ACTION

The most widely accepted theory for dentin hypersensitivity is the hydrodynamic theory. When dentinal tubules in vital teeth are exposed after cementum or enamel is lost due to erosion, abrasion, dental manipulation, or a tooth defect, fluid within the dentinal tubules may flow in either an inward or outward direction depending on pressure differences in the surrounding tissue. Intratubular fluid shifts in response to stimuli such as cold, heat, sweet or sour activate mechanoreceptors in intratubular nerves or in the superficial pulp, and are perceived as pain by the patient.



GINGIVAL RECESSION

Overzealous brushing may lead to “toothbrush disease”

Gingival recession usually precedes dentin hypersensitivity and is perhaps the most significant predisposing condition of dentin hypersensitivity.

Many instances of gingival recession begin with patients practicing what they perceive as meticulous oral hygiene, which may lead to over-brushing certain areas of their mouths. This can ultimately enhance the frequency and severity of gingival recession in an otherwise healthy dentition.

Clinical studies have reported more gingival recession with good oral hygiene or improved oral hygiene. In these studies, the most brushed teeth with the lowest plaque scores exhibited the most gingival recession. This has led to the description of gingival recession/dentin hypersensitivity as “toothbrush disease.” Because toothbrushing alone (without toothpaste) has no abrasive or erosive action on dentin, the loss of dentin is a result of the abrasivity of toothpastes. Once gingival recession has exposed root surfaces, the cementum is rapidly lost from brushing with toothpaste and/or professional cleaning.



Recession lesions in the early stages of development on the first premolars.

TOOTH WEAR

Loss of enamel leaves dentin exposed

Tooth wear refers to the irreversible loss of tooth structure and includes conditions such as abrasion, erosion, attrition, and abfraction. Today's acidic diets and toothbrushing habits may contribute to erosion and abrasion, which can lead to dentin hypersensitivity.

Erosion is the loss of tooth structure by chemical dissolution resulting from extrinsic acids found in the diet (such as citrus fruit and drinks, acidic wines, and carbonated drinks) or intrinsic acids. Erosive tooth wear, or acid wear, is a two-stage process in which acids soften the tooth's surface through demineralization. These softened surfaces may be rehardened through the action of saliva and fluoride, but the process takes one to two hours. If the softened enamel is subject to frictional or abrasive forces—such as toothbrushing—the surface will be permanently removed, resulting cumulatively over time as an erosive lesion.

Once mineralized tissues have been softened by repeated exposure to acids, they become more susceptible to combinations of attrition and abrasion. The problem may be aggravated by dentifrices with higher levels of abrasive ingredients.

“Patients today place a great deal of emphasis on esthetics, but we must remember that our first responsibility is maintaining health.”

- Dr. Connie Drisko, in remarks at the ADA Annual Session

[Click here](#) to learn more about these conditions, their ties to dentin hypersensitivity, and how Sensodyne can help.

VITAL BLEACHING

Sensitivity often interferes with compliance

While the popularity of tooth bleaching is expanding exponentially, a common side effect of the treatment is tooth sensitivity. This sensitivity can be severe enough to cause patients to discontinue home bleaching. In fact, tooth sensitivity is the single most significant factor in noncompliance with, or failure to complete, a bleaching regimen.

The typical causes of dentin hypersensitivity generally involve the hydrodynamic theory of fluid flow, but the sensitivity associated with bleaching seems to have a different origin. All bleaching products contain either hydrogen peroxide or compounds that break down to hydrogen peroxide (ie, sodium perborate or carbamide peroxide). These substances can easily pass through the enamel, through the dentin in the interstitial spaces into the pulp. The resultant pulpal response of sensitivity may be considered a reversible pulpitis.

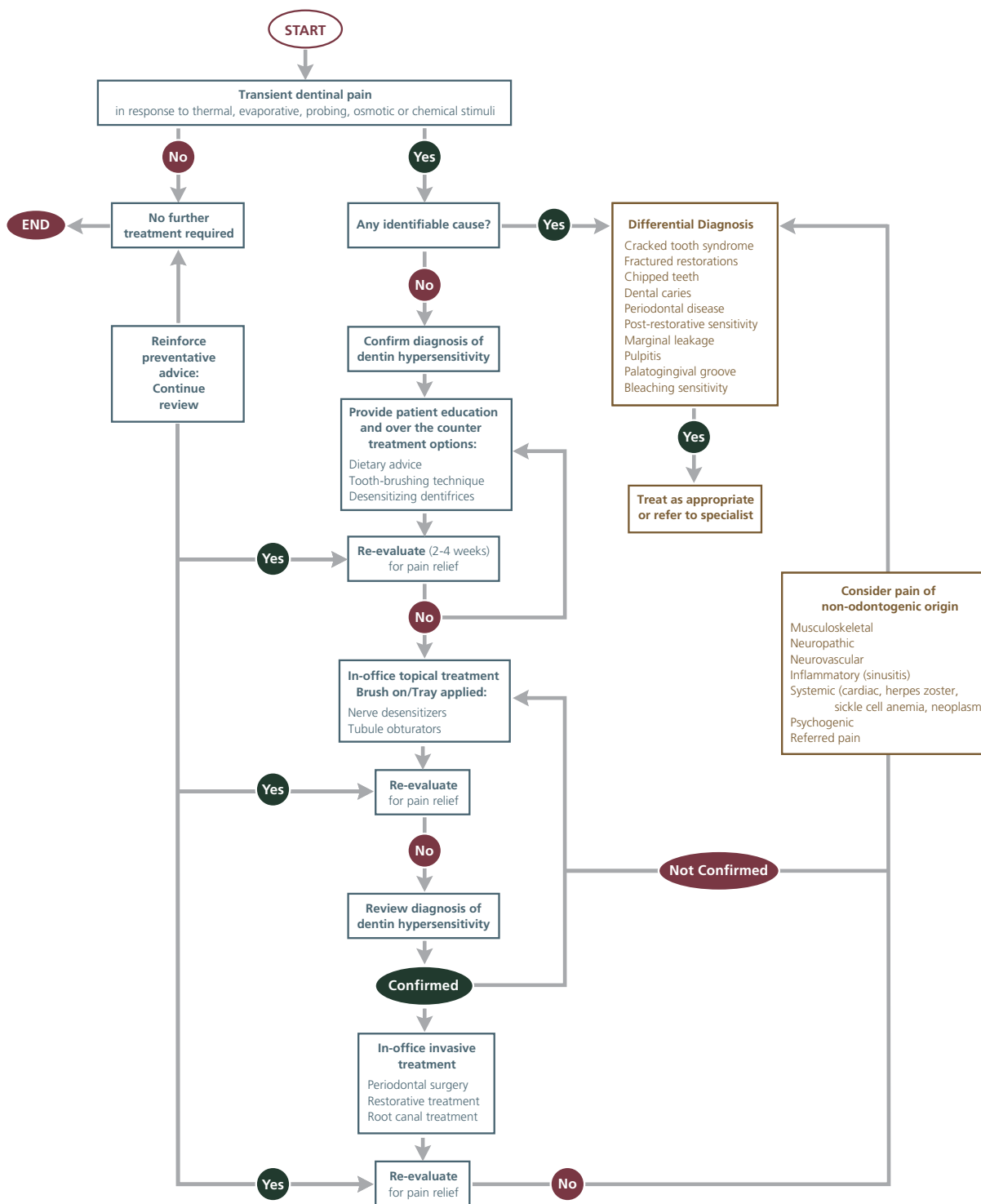
Pre-Brushing with Potassium Nitrate for Sensitivity Avoidance

A recent study compared patients who pre-brushed with a toothpaste containing potassium nitrate (Sensodyne) for two weeks before initiating bleaching to another group that used conventional fluoride-containing toothpaste. The group that pre-brushed with the potassium nitrate-containing toothpaste had less sensitivity overall, less sensitivity in the first three days, and more sensitivity-free days before a first occurrence. Results of patient surveys showed that the switch to a potassium nitrate-containing toothpaste was easy and well-accepted.



Tooth sensitivity is the single most significant deterrent to bleaching.

Clinical Management of Dentin Hypersensitivity



This flowchart, reprinted from the full report, summarizes the authors' recommendations on treating dentin hypersensitivity. The report emphasizes that a dental professional's first recommendation upon diagnosis should include twice-daily use of a desensitizing dentifrice such as Sensodyne.

[Click here](#) to download the full report.

