

Acute Care For Unusual Cases of Hypersensitivity

Dentinal Hypersensitivity is a ubiquitous problem, occurring most commonly with cervical toothbrush abrasion, following recently placed restorations, and after periodontal surgery. Most in-office procedures to limit hypersensitivity are focused on blocking dentinal tubules with restorations, or coating with oxalate type products. Small incisal edges and cingulum tooth surfaces exposed to wear are difficult to restore and do not retain topical agents well. These areas are more amenable to treatment with potassium nitrate containing dentifrices delivered with soft mouthguard or bleaching type trays.

High levels of potassium nitrate (KNO₃) in the dentinal fluid can maintain pulpal sensory nerves in a depolarized state, reducing hypersensitivity. The depolarized nerve requires a stronger stimulus to elicit a nerve response. Brushing with desensitizing toothpaste may not be effective in patients with extensive dentinal exposure from bruxing or other factitious habits. Extended contact with tooth surfaces using mouthguards or trays is an effective method of delivering desensitizing agents.

Cases have been encountered where patients have been unable to drink even room temperature water without severe pain, making dehydration a serious concern. Patients with nocturnal mouthbreathing habits will dry out exposed dentinal surfaces and exacerbate hypersensitivity on both cervical and incisal exposed areas. In cases that present difficult application challenges, a soft mouthguard appliance can be used as a carrier for desensitizing dentifrices. Additionally, use of a mouthguard introduces the patient to a habit breaking device in cases of bruxing related hypersensitivity or object chewing.

Potassium nitrate can be used as a desensitizing agent in the form of a solution, gel, or commercial toothpaste. UltraEZ from Ultradent contains 3.0% KNO₃ with 0.25% fluoride and is recommended for use in trays. Sensodyne and most other desensitizing brands contain 5% potassium nitrate. If increased levels of potassium nitrate can be maintained in the dentinal fluid, penetration of the ions into the pulp will prevent subsequent depolarization of the nerves. Critical to the success of potassium nitrate use as a topical agent is plaque free oral hygiene. Any lowered pH produced by bacterial plaque will cancel the effect of potassium nitrate products.

Because dentinal hypersensitivity is usually accompanied by pulpal inflammation, prescription of anti-inflammatory medication is indicated for severe cases.

Consider the use of mouthguard or bleaching gel type trays as an effective method for delivering desensitizing agents in acute cases of dentin hypersensitivity.

Jerome CE. Acute care for unusual cases of dentinal hypersensitivity. *Quintessence Int* 1995;10:715-716