

Effective Desensitization: A Case Series

A critical examination of a group of suffering patients



Emily Boge, RDH, BS

Manchester, Iowa

One of the most frequently encountered complaints in clinical practice, dentin hypersensitivity is reported to occur in more than half of adult patients.¹ The very common presence of tooth wear (attrition, abrasion, abfraction, and erosion) and gingival recession lead to dentin exposure, which predisposes a patient to hypersensitivity. When the exposed dentin exhibits tubules that are open to the oral cavity, certain triggers (most predominantly, cold) initiate the short, sharp pain that is characteristic of the condition. Assuming they must tolerate this sensitivity, patients often fail to inform their dental professional unless prompted. Although restorative procedures are sometimes indicated for treatment of cavitated or excessively worn cervical areas, fewer invasive procedures are available when the intent is to seal the ends of the open tubules and arrest the symptoms.

As this case series shows, topical therapeutic desensitizers can be simple and affordable for both the patient and the dental office and application to several teeth often takes less than 1 minute providing almost instant relief. One therapeutic agent available for topical desensitization is an 8% arginine-calcium carbonate paste (Colgate Sensitive Pro-Relief® Desensitizing Paste) that has been proven in clinical trials to be effective after a single application.² The underlying technology is unique in that its two key components are found to occur naturally in saliva and that they work to accelerate the natural mech-

Effective Desensitization: A Case Series

anisms of occlusion by depositing a dentin-like material within the tubules and in a protective layer on the dentin surface. On application of this agent rapid relief of symptoms occurs. Due to the rapid action and relief, it is important not to overlook the modification of the predisposing factors, which are typically addressed through patient education. Patients treated in-office with this product, which combines desensitization and a lack of soft-tissue interaction, have responded positively, mentioning its pleasant flavor and lack of unpleasant odors compared to glutaraldehyde products.

Case Series

A series of 11 cases involving patients with dentin hypersensitivity was documented. Patients were followed over a period of 28 days to determine the effectiveness of the Colgate Sensitive Pro-Relief® Desensitizing Paste. These patients all presented with pain as their chief complaint. Eight patients complained of intense sensitivity noticed on a daily basis, while the remainder complained of moderate sensitivity noticed most days. In addition, most complained of pain at multiple sites. Trigger factors were drinking cold liquids, eating cold, hot, or sweet foods and snacks. Assessment by a dental hygienist followed by examination by a dentist indicated evidence of areas of root exposure in all patients. Gingival recession associated with abrasion was found in patients (Figure 1), while two patients had

FIGURE 1—A 77-year-old woman with considerable exposed dentin from both gingival recession and tooth wear, predominately abrasion. The arginine calcium carbonate paste was applied with a slow rotating rubber cup.



Images courtesy of Boge.

Effective Desensitization: A Case Series

recession due to moderate periodontal disease. In other patients, possible contributing factors included a history of orthodontic treatment, crowded or missing teeth, or parafunctional habits. No carious lesions, fractures of teeth or restorations were evident in any of the patients and, no relevant medical conditions, such as gastroesophageal reflux disease or bulimia, were present. A process of differential diagnosis excluded other common causes of dental pain other than dentin hypersensitivity.

Treatment

In an effort to provide immediate relief during their initial visit, all patients were treated with Colgate Sensitive Pro-Relief® Desensitizing Paste. This product was gently applied using a rubber cup to the sensitive sites according to manufacturer's instructions. All patients were also given Colgate Sensitive Pro-Relief® Toothpaste, which contains 5% potassium nitrate and 1.14% sodium monofluorophosphate (0.19% w/v fluoride ion). The mechanism of action of potassium nitrate is to block the nerve impulses, and as such, must diffuse the length of the dentin tubule in an adequate concentration to be effective. It is for this reason that potassium nitrate takes up to 14 days to provide relief, unlike the instantaneous relief gained by application of the arginine paste. Patients were instructed to use the paste in place of their regular toothpaste twice daily with the goal of providing ongoing relief between recall appointments. They also received standard oral hygiene instructions on how to brush and floss, and were given an ultrasoft sensitive toothbrush.

Outcomes

Regular prophylaxis techniques such as ultrasonic usage, tactile hand scaling, and polishing were completed. In 10 of 11 patients, the topical application of the arginine-calcium carbonate paste provided an immediate relief. For the remaining patient, only very mild sensitivity remained.

All 11 patients were reviewed after 4 weeks and continued to experience either a complete absence of sensitivity or a mild sensitivity with much reduced inconvenience when consuming the foods and beverages that had previously triggered the symptoms. These patients also reported that they had used their Colgate Sensitive Pro-Relief® Toothpaste and Colgate 360°® ultrasoft sensitive toothbrush as instructed. None reported any adverse events. Patients also found the change in toothpaste to be very acceptable and thus easy to comply with the twice-daily usage.

Conclusion

Treating patients with 8% arginine-calcium carbonate paste provided complete and instant pain relief in patients experiencing intense dentin hypersensitivity. In combination with this treatment, Colgate® Sensitive Pro-Relief™ Toothpaste provides an effective home treatment and it can be expected that patients will have excellent ongoing relief from dentin hypersensitivity.

REFERENCES

1. Addy M. Dentine hypersensitivity: new perspectives on an old problem. *Int Dent J.* 2002;52(Suppl 5):3367-3375.
 2. Schiff T, Dotson M, Cohen S, et al. Efficacy of a dentifrice containing potassium nitrate, soluble pyrophosphate, PVM/MA copolymer, and sodium fluoride on dentinal hypersensitivity: a twelve-week clinical study. *J Clin Dent.* 1994;5(Spec No):87-92.
-

The author received an honorarium from Colgate-Palmolive.