Managing dentine hypersensitivity

A review of the GSK-supported symposium, ‘Successful management of dentine hypersensitivity in practice’

By Lisa Townshend, Dental Tribune U.K. Edition

At the FDI’s Annual World Dental Congress, which was held recently in Salvador de Bahia, Brazil, GSK supported a symposium dedicated to the topic of dentine hypersensitivity.

First to speak was Prof. Martin Addy. Addy is a lecturer at the University of Bristol’s School of Oral and Dental Sciences. His presentation, “Dentine Hypersensitivity: Understanding the Condition,” aimed to set the scene by looking at the accepted definition of hypersensitivity and possible reasons for the condition.

Addy described the history of the profession’s knowledge of dentine hypersensitivity by quoting Johnson et al. (1982): “An enigma being frequently encountered but ill understood. Although there has been an awareness of the condition for more than 100 years, there is still much unknown about it.”

To define dentine hypersensitivity, Addy looked to Holland et al. (1997): “Dentine hypersensitivity is characterised by short, sharp, pain arising from exposed dentine 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.”

He commented that it is very difficult to clinically diagnose sensitivity as sensitive and non-sensitive dentine looks similar at a level where a clinician would be seeing it.

Addy described the most accepted theory for hypersensitivity — hydrodynamic theory. Explaining the hydrodynamic mechanism in relation to the teeth, he referred to a study where a sensitive and a non-sensitive tooth were analysed. It showed that the sensitive tooth had eight times the number of tubules, and the tubules themselves were twice the diameter of those in the non-sensitive tooth.

Next to speak was Prof. Nicola West from the Bristol Dental Hospital and School. Her presentation, “Dentine Hypersensitivity: The Importance of Patient Factors,” looked at the aetiological factors for hypersensitivity. She highlighted the behavioural effect of dentine hypersensitivity on patients whose quality of life is impaired by the condition. She focussed on the issue that dentine needs to be exposed to cause hypersensitivity and that the exposure is mainly caused by gingival recession, compromise of gingiva by periodontal disease or enamel erosion.

Gingival recession is often caused by trauma to the margins, usually by the vigorous brushing of the sufferer. West advised looking at a patient’s toothbrush and his/her brushing methods when trying to diagnose sensitivity.

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find a cause for hypersensitivity, but did caution that it could be difficult as patients will modify their behaviour when being observed.

West also discussed enamel erosion at length, explaining the difference between intrinsic (i.e., GORD) and extrinsic (i.e., acid challenges caused by food and drink) erosion. When looking at extrinsic erosion, West focussed on the acidic challenges that teeth came under from the diet of a hypersensitivity sufferer. Many of the problems seem to stem from the number of acidic drinks available.

According to the 2009 sales figures for soft drinks in the United Kingdom, a staggering 229.1 litres of soft drinks are consumed per person per year; that’s 0.65 litres a day! For a person susceptible to erosion, this can present a large acidic challenge to teeth.

West called for routine screening for tooth wear and erosion, especially in the face of the rise in patient and tooth longevity and the availability of treatments to help reduce the severity of the sensitivity for patients. She also listed some recommendations for clinicians to give to patients: reduce frequency of acid exposure; avoid acidic foods and drinks at night time; no swishing or frothing; avoid tooth brushing straight after an acidic challenge.

The next presentation was from Dr. Stephen Mason. His presentation, “Sensodyne Rapid Relief Instant and Long-lasting Protection,” detailed the latest GSK product offering to combat sensitivity. Mason detailed the different formulations Sensodyne has had in the past using strontium chloride and the particular challenges this presented, namely, a taste many consumers disliked and non-compatibility with fluoride.

Strontium chloride was then surpassed by strontium acetate because of its compatibility with fluoride, non-staining properties and improved taste. This has now been developed into a marketable product called Sensodyne Rapid Relief.

Mason discussed some of the clinical research that has been conducted for the rapid-relief product, first against fluoride-control toothpaste and then against a competitor brand using 8 percent arginine calcium carbonate.

The studies showed that there was a marked reduction in pain felt by the subjects both after immediate application with a pea-sized amount direct to the tooth and after marked periods of time brushing twice a day. In nearly every study, the group using rapid relief showed the most improvement.

The final speaker at the symposium was Prof. Eduardo M.B. Tinoco, associate professor at Rio de Janeiro State University (UERJ/UNIGRANRIO). His presentation, “Practical Approaches to Management of Dentine Hypersensitivity in Practice,” looked at the diagnosis and management of sufferers in practice. The fact that he did his presentation in Portuguese proved a stronger challenge for the English speakers amongst the audience; however, translation was provided.

After a brief overview of the prevalence, possible causes and definition of dentine hypersensitivity, which Addy had already covered in more depth, Tinoco then posed the question “dentine hypersensitivity: How do I treat this?”

A good starting point for managing hypersensitivity in practice once a correct diagnosis has been made and other causes have been excluded or treated, said Tinoco, is the identification of aetiological factors and their prevention by means of diet modification or oral health instruction.

Other factors he discussed beyond those already mentioned in previous presentations included more occupational factors such as the damage sustained by competitive swimmers and professional wine tasters.

Obviously, wine got many people’s attention and Tinoco showed an instruction about how to taste wine properly.

To fully experience the taste of a wine, swirl a little bit of it in your mouth to cover all your taste buds. Take a moment to enjoy the flavour before either swallowing or spitting out the wine. In addition to the initial taste, you will find there is also an aftertaste to the wine, usually referred to as the finish.

Tinoco then discussed treatment adjuncts, both for patients at home and clinical interventions in surgery. Clinical treatments included the use of varnishes and primers, the use of glass ionomers to cover the affected area and laser treatments or mucogingival surgery.

He concluded that there should be pro-active screening on all patients to help with a correct diagnosis. Advising patients about diet modification, etc., should help remove or modify the severity of the sensitivity and the recommendation of brushing with desensitising toothpaste twice daily as well as rubbing it on affected areas is an extremely efficacious, low-cost, non-invasive treatment.

This symposium gave delegates an excellent update into treatments and modalities for patients with dentine hypersensitivity as well a great overview of Sensodyne Rapid Relief.