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REVIEW

Discussion: how can we improve diagnosis of dentin hypersensitivity in the dental office?

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What is known?

Dentin hypersensitivity (DHS) is characterized by a sharp, short-lasting "dentinal" pain originating from pulpal tissues in a healthy pulp as a consequence of an external stimulus, which can be thermal (hot; cold, including air), electrical, mechanical, osmotic (sweet; sour), or chemical [19].

Its occurrence and intensity among individuals lies within a clinical spectrum that ranges from occasional stimulus-reliant moderate pain to frequent stimulus-dependent intense pain.

What are the problems?

A search in reveals that the number of publications related to the diagnosis of DHS is limited (Table 1). This may be an indication that the issue of making a diagnosis is either an easy or a difficult task. In fact, the latter is the case.

Time is needed to make a correct diagnosis because (a) a thorough patient history is required and (b) DHS is a diagnosis of exclusion: it is confirmed only after possible other conditions have been diagnostically eliminated.

Unfortunately, a validated screening checklist of DHS-related predisposing, initiating, and perpetuating risk factors identified in clinical or epidemiological studies is not yet available.

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Since individuals may be affected by DHS in varying degree, mild forms may not be reported by the patient to the dentist. Conversely, in other patients, DHS may substantially impair oral health-related quality of life (OHRQoL), for instance during drinking, eating, and oral hygiene [5]. Not every patient who suffers from DHS may know where to seek help to alleviate the pain.

What are the recommendations for daily practice?

1. In every (new) patient, irrespective of a patient complaint of DHS, a verbal screening is recommended, during which she/he is asked the following questions:
   (a) Do your teeth hurt when eating or drinking *hot*, *cold*, or *acidic* food or drinks?
   (b) Do your teeth hurt when you brush your teeth?
   If patients answer with "yes" on at least one of these questions, specific pain characteristics should be recorded (e.g., character, severity, site, onset, etc.).
2. Clinicians may ask or look for:
   - Personal behavior (e.g., consumption of highly acidic drinks or food; overzealous dental hygiene);
   - Previous dental procedures (e.g., scaling and other periodontal therapy; tooth bleaching; restorative procedures);
   - Clinical signs (e.g., dental erosion; gingival recession; exposed cervical dentin; periodontitis; caries; tooth fractures).
3. In patients with suspected DHS (due to positive findings in step 1 and, possibly, step 2), a thorough differential diagnosis is indispensable. Hence, other forms of orofacial pain, including pulpitis, periodontal pain, cracked tooth syndrome, and atypical odontalgia, must be excluded, before the diagnosis of DHS is made.

Table 1 The results of a PubMed search reveal that many more publications focus on the therapy of dentin (hyper)sensitivity than on diagnostic aspects. Search date December 10, 2012

Search strategy	Hits
("Dentin Sensitivity"[Mesh]) and "therapy" [Subheading]	1,348
("Dentin Sensitivity"[Mesh] and "diagnosis" [Subheading])	381

4. A specific DHS-related clinical examination is obligatory in cases with positive findings in steps 1 and, possibly, 2, and negative findings in step 3:

   It is suggested to move a blunt exploratory probe in the mesiodistal (or distomesial) direction on the exposed dentin [12, 15]. In addition, a jet of air should be directed towards the affected tooth region [12, 15]. These tactile and thermal stimuli should provoke the DHS-associated pain.

   Pain *intensity* should be measured by using an 11-point numerical rating scale, a 100-mm visual analog scale, or a validated graphic pain scale, such as the Faces Pain Scale [6].

   Pain *quality* should be characterized by verbal descriptors ("pain adjectives"), either according to the patient's spontaneous report or by the use of a validated questionnaire [10, 11].
5. Since DHS may affect OHRQoL, it is recommended to include this pain-related dimension during the patient assessment. A suitable instrument for this purpose is the Oral Health Impact Profile [17], which needs to be completed by the patient. In addition to the original version of this questionnaire, validated translations are available in other languages, including Arabic [1], Chinese [21], Croatian [13], Dutch [20], French [2], German [8], Hungarian [18], Japanese [7, 22], Portuguese [14], Russian [4], Slovenian [16], Spanish [9], and Turkish [3].
6. Finally, education of the public should be fostered to ensure that individuals affected by and suffering from DHS know that dental practitioners may be able to alleviate their symptoms.

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