

R-13. Evaluation of electric pulp test(EPT) as a tool for measurement of dentinal hypersensitivity

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Examination of hypersensitive dentine serves two purposes: qualitative methods are adequate for diagnosis, whilst quantitative methods are required for the evaluation of desensitizing treatments. Many of the methods have been or are semiquantitative; hence, stepped indices (such as 0, 1, 2 and 3) have been used to reflect different levels of pain intensity or severity. Others that involve physical or chemical instrumentation usually use a continuous scale. The digital pulp tester has a digital reading, increasing with the increase of stimulation, either current or potential. The accuracy, consistency and reliability of the digital pulp tester was investigated by Cooley *et al.*. So we can assume that it allows us to quantify and compare the hypersensitive status of a tooth.

In this study, 40 hypersensitive teeth of 19 patients were investigated. The procedures performed were as follows: Before desensitization, EPT at occlusal third of buccal surface was done for the evaluation of pulp vitality and the EPT value was recorded for the reference value. And mechanical and thermal test was executed for the test of hypersensitivity. If the tooth responded to the above tests, we did EPT at the exposed surface, using toothpaste as an electrolyte medium and recorded the EPT value at patient's response. After the tests had been done, desensitization procedures with Gluma[®] Desensitizer were performed according to the manufacturer's instructions. After desensitization, the same tests except EPT at occlusal third were repeated.

All the 40 teeth responded positive before desensitization and negative after desensitization procedures. The EPT value at occlusal third ranged from 31 to 65 (48.9 ± 7.2). Before desensitization 34 teeth responded at EPT value of 2 and the remaining 6 teeth were in the range of 17 to 25. After desensitization all 40 teeth responded from 12 to 27 (19.6 ± 3.5). The 6 teeth responded at greater number than 2 before desensitization were in the range of 18 to 23.

With in the limitations of this study we can conclude that:

1. When a tooth with dentinal hypersensitivity responds to mechanical and thermal stimulation, the tooth shows very low resistance to electricity at the exposed surface.
2. When a tooth is desensitized and doesn't show respond to mechanical and thermal stimuli, the tooth shows increased level of resistance to electric stimulation at the exposed surface.
3. EPT can be used for the diagnosis of dentinal hypersensitivity.
4. Furthermore EPT will be useful to evaluate the outcome of desensitization procedures.
5. However, EPT is not a valid tool for measuring dentinal hypersensitivity.