

Evaluation of pulp vitality tests in children: thermal test, electric pulp test and pulse oximetry

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Abstract

Background and Aims: Thermal and electric pulp testing vitality is of limited use with children, often resulting in false positive or false negative results. The main limitation of the present pulp testing methods is the evaluation of vitality by stimulating the sensory nerve fibers which is unreliable in cases of trauma. Pulse oximetry is a proven method of measuring vascular health by evaluating oxygen saturation. The aim of this study is to evaluate the thermal and electric tests methods and examining the oxygen saturation of teeth in children.

Materials and Methods: In this study seventeen children aged between 10 to 12 years with vital maxillary central incisors with no caries, history of trauma to the teeth, orthodontic treatment, restoration and par functional habits, participated. After isolating teeth, for the cold test refrigerant spray 1,1,1,2 tetrafluoroethane, for the warm test gutta-percha and for the electric pulp test the pulp vitality tester (PT-20) was used. The Spo₂ of teeth was evaluating with pulse oximetry. Then data reported.

Results: All the teeth gave positive responses to the thermal test. The mean value of electric pulp test for girls was 5.69 and for boys were 5.41. Also the mean value of electric pulp test in the maxillary left central was 5.35 and for maxillary right central were 5.77. The mean value of Spo₂ for girls was 92.78 and for boys was 92.19. The mean value of Spo₂ in the maxillary left central was 92.12 and in the maxillary right central was 92.88.

Conclusion: Pulse oximetry is a noninvasive, cheap method to detect pulp vitality by evaluating the oxygen saturation which can be useful for evaluating the pulp vitality especially in the case of trauma and pediatric dentistry.

Key words: Children, Pulp Vitality, Pulse Oximetry.