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In vivo Treatment of Occlusal Caries with Ozone: Immediate Effect and Correlation of Diagnostic Methods

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Ozone has been proven to reverse root caries clinically [Baysan et al.: J Dent Res 2001;80:37]. It is now being investigated as a pharmaceutical treatment for pit and fissure carious lesions (PFCLs) in longitudinal controlled clinical studies. **Aim:** To correlate DIAGNOdent® and electrical caries monitor (ECM) readings with a clinical classification of PFCLs, and then to study the immediate effect of ozone application on these readings. **Methods:** A total of 236 PFCLs were entered in 58 patients. After cleaning each lesion using a Prophyflex 2® (KaVo, Germany), a clinical classification [Ekstrand et al.: Caries Res 1998;32:247–254], DIAGNOdent (KaVo, Germany) and ECM (LODE BV, Netherlands) standard scale readings were recorded. Half of the lesions were treated with ozone (Heal-Ozone Unit: CurOzone, USA) for 10 s and the other half were reserved as controls. The readings were repeated after the ozone treatment. **Results:** DIAGNOdent readings correlated significantly with the clinical classification ($r_S = 0.296$, $p < 0.001$). The ECM readings significantly correlated negatively with the clinical classification and with the DIAGNOdent readings ($r_S = -0.399$, $p < 0.0001$ and $r_S = -0.236$, $p < 0.01$). A significant overall reduction of DIAGNOdent readings was produced immediately after ozone treatment ($p < 0.05$). The percentage of teeth which produced this reduction was 56%. ECM readings were not altered immediately by the ozone treatment. **Conclusion:** The results demonstrated correlations between the clinical classification used in this study with ECM and DIAGNOdent readings. Ozone was shown to reduce the DIAGNOdent readings immediately in more than half the lesions. Not surprisingly, as no remineralization can occur immediately, ozone did not immediately change the ECM readings. Any effect will be monitored over time.