Effect of ozone on non-cavitated fissure carious lesions in permanent molars. A controlled prospective clinical study.

Abstract:

PURPOSE: To investigate, with a randomized controlled clinical study, the effect of ozone on non-cavitated initial occlusal fissure caries compared with untreated contra-lateral control lesions (split mouth) considering the patient's current caries risk.

METHODS: Forty-one patients with 57 pairs of lesions were enrolled in the study (mean age 7.7 +/- 2.2 years; upper jaw n=29, lower jaw n=28). Gaseous ozone (HealOzone) was applied once for 40 seconds to the randomly assigned test molar of each pair without the use of remineralizing solutions. Lesion progression or reversal was monitored by the laser fluorescence system DIAGNo dent for up to 3 months and the deterioration or improvement compared between the ozone-treated lesions and the untreated control lesions (in pairs). This was done for the whole study population and a subgroup of patients with high current caries risk (lesion pairs n=26).

RESULTS: After 3 months, explorative data analysis revealed that the ozone-treated lesions showed significantly more caries reversal or reduced caries progression than the untreated control lesions within the group of patients at high current caries risk (Wilcoxon-Test, P= 0.035). There was no statistical significance examining the whole study population. From the data it can be concluded that ozone application significantly improved non-cavitated initial fissure caries in patients at high caries risk over a
3-month period.

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