



PhD in Clinical Medicine and Public Health

Research Area: Clinical Dentistry

Title: Remineralization Vs. Infiltration of enamel White Spot Lesions: Ex Vivo study

Dental caries is a complex process of cyclical enamel DE and REmineralisation. The earliest clinical sign that dental caries is in progress in the mouth is the so-called “white spot lesion”. This process can be arrested or even reversed since cycles of demineralization and remineralization continue in the mouth as long as cariogenic bacteria, fermentable carbohydrates and saliva are present. There are two main therapeutic approaches for white spot lesions: A) Remineralization involves the use of agents aimed to promote the regeneration of hard tissue whereas

B) Infiltration aim to halt the caries process by depriving bacteria from fermentable substrate.

This ex vivo study has as global objectives to induce artificial enamel white spot lesions and to evaluate optical, morphological and mechanical characteristics of white spot lesions, after application of different remineralizing agents (250ppm NaF Mouthwash; 22600ppm NaF Varnish+TCP and CPP-AFCP Paste) and enamel resin infiltration (ICON®) with different timings and combinations.

The sample will be 408 specimens of enamel and divided into 12 groups (n=34). Specimens will be tested with Polarized Light Microscopy, Scanning Electron Microscopy Vickers Micro hardness test, Optical Coherence Tomography, Confocal Laser Scanning Microscopy. Data will be analysed statistically in the SPSS software. Descriptive statistics measures will be calculated (eg: median, standard deviation, maximum value, minimum value). The ANOVA test and probably repeated measures ANOVA will be done. A 95% confidence interval will be considered.

Keywords: enamel; remineralization; infiltration; white spot lesions

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Start Year: 2018