ABSTRACT

Objectives: This study investigated the ability of a biomimetic Self-Assembling Peptide (Curodont Repair©) to induce remineralization of white-spot lesions (WSL) compared to fluoride-varnish.

Methods: One hundred sound-enamel specimens were prepared from human permanent molars. Baseline surface micro-hardness (SMH1) was measured. WSL were produced in a treatment window followed by another SMH2. Specimens were randomly assigned to 5 treatment groups (n=20/group): control received no treatment (CON); treated with conventional fluoride-varnish (F), Curodont (C), Curodont followed by MI fluoride-varnish (CF), and Curodont followed by MI fluoride-varnish then daily standard fluoride-varnish.

Results: Intragroup comparison using Paired t-test showed significant remineralization in all groups except CON (p<0.05). ANOVA followed by post-hoc (Student-Newman-Keuls) indicated significant (p<0.05) higher %SMHR in other treatment groups when compared to control (-124.5%). Although the treatment groups were not statistically significantly different from each other, their %SMHR ranked as follows: Curodont(70.3%)>CF(31.2%)>F(17.9%)>CFOTC(15.7%).

Conclusions: The present study demonstrated that Curodont Repair© could enhance remineralization in WSL significantly. It also demonstrated a synergistic potential of combining Curodont and fluoride-varnish treatment compared to fluoride-varnish treatment alone.

INTRODUCTION

The non-regenerative characteristic of enamel makes it a volatile tissue that is both prone to biologic destruction and unable to heal itself after demineralization. Biomimetic compounds that can aid in the regeneration of tissues such as enamel have been of particular interest. Curodont Repair, which has been in use in the European market, has the ability to NATURALLY regenerate enamel. This material diffuses deeply into the porous structures of the decayed tooth and under the low pH of the lesion it assembles to a 3D scaffold that has high affinity to and attracts ions such as calcium and phosphate from the patient’s saliva or applied dentifrices. These ions help in the remineralization of the tooth surface. This study evaluated the potential synergistic effect of combining Curodont Repair and Fluoride Varnish.

MATERIALS AND METHODS

This research was supported in part by the Baylor Oral Health Foundation and the Office of the Associate Dean for Research and Graduate Studies, Texas A&M University Baylor College of Dentistry.

ACKNOWLEDGMENTS

This research was supported in part by the Baylor Oral Health Foundation and the Office of the Associate Dean for Research and Graduate Studies, Texas A&M University Baylor College of Dentistry.

REFERENCES