Abstract

Molar incisor hypomineralization (MIH) is a qualitative defect of enamel development, which occurs in the mineralization phase. It affects one or more first permanent molars and is often associated with permanent incisors. Patients with MIH have

increased risk of caries, hypersensitivity and failure of restorations. The objective of this research will be to evaluate the clinical effect of antimicrobial photodynamic therapy (aPDT) on permanent teeth with HMI, in order to promote decontamination and longevity of restorations through deproteinization. Patients aged 6 to 12 years will be selected, randomly divided into three groups. The teeth must present carious lesions in dentin, with post-eruptive fracture on a single surface or multiple surfaces and indicated for restorative clinical treatment. The selective chemical-mechanical removal of the caries lesion will be carried out with PapacarieTM (F&A) applied to the carious dentin and adjacent demarcated opacities for the purpose of deproteinization and photodynamic therapy with the use of low power laser and 0.005% methylene blue as a photosensitizer with pre-irradiation time of 3 minutes (GROUP 1); Selective removal of carious tissue, photodynamic therapy with the use of low-level laser and 0.005% methylene blue as photosensitizer will be performed, with a pre-irradiation time of 3 minutes and deproteinization with 5% sodium hypochlorite (GROUP 2) ; Selective removal of carious tissue will be performed with a dentin curette (GROUP 3). Subsequently, the teeth will be restored in the mixed technique with resin-modified glass ionomer cement and bulkfill composite resin. The effects of photodynamic therapy on decontamination (microbiological analysis), post-treatment sensitivity (VAS and SCASS Scale) and deproteinization on restoration longevity (modified USPHS Index) will be evaluated every 3 months for 12 months. The data obtained will be subjected to descriptive statistical analysis to evaluate the association of categorical variables in age and gender, the Chi-square and Fisher's Exact test will be used, for analysis of the correlation between continuous variables, Pearson's correlation test will be applied. For the microbiological results of the colony forming units, ANOVA and Kruskal-Wallis will be applied.