ABSTRACT

The aim of this study was to compare two simplified restorative techniques, using bulk-filling resins, with the conventional incremental technique to perform posterior restorations in composite resins, thus, a parallel, randomized, controlled and double-blind clinical trial was conducted. For this purpose, 27 volunteers were selected according to the following inclusion criteria: good oral hygiene, no parafunctional habits, occlusal stability and present at least 3 permanent molars with Class I or Class II cavities (depth>3mm) that require restorative treatment. Thus, 105 permanent molars were included in the study and randomly allocated (n=35) in the following groups: 1) AMS: posterior restoration using microhybrid composite resin (Amaris, Voco, Cuxhaven, Germany) by incremental technique (control); 2) RBD: posterior restoration by bulk filling technique with dual cure core composite (Rebilda DC, Voco, Cuxhaven, Germany) associated to a capping made of microhybrid composite resin (Amaris) and; 3) XBS: bulk filling with a low-contraction flowable composite resin (X-tra Base, Voco, Cuxhaven, Germany) associated to a capping made of microhybrid composite resin (Amaris). The restorations were performed by a single experienced operator and evaluated by two independent, blind and calibrated examiners (*Kappa*≥0.8). The evaluations were performed using the modified USPHS criteria, after 7 days of restorations performed (baseline) and after 6 and 12 months. A descriptive analysis was performed to report relative cumulative frequency distribution of the scores of modified USPHS criteria, the Friedman's one-way test was applied to verify differences among restorative techniques and the or Wilcoxon signed rank test for repeated measures was applied to verify the effect of follow-up time and the interaction of time and restorative techniques, both tests with significance level of 5%. The results indicated that there were no statistical differences among the restorative techniques (p>0.05), nor differences between the follow-ups periods (p>0.05). There was also no interaction between follow-up period and restorative technique (p>0.05). The descriptive analysis showed the incidence of marginal discoloration associated with clinically acceptable marginal disadaptation in only 2 AMS restorations (5.7%), 1 RBD restoration (2.9%) and 1 XBS restoration (2.9%) after 12 months. Only one restoration failed after 12 months in the XBS group, due to the irreversible pulpitis occurrence (Annual Failure Rate of 2.9% for XBS). Therefore, it is concluded that the simplified techniques, which use the dual

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cure core resin composite or the bulk fill resin composite, presented satisfactory clinical behavior, compared to the incremental technique, over time.

Key-words: Composite resin. Dental restoration, permanent. Dental restoration failure.

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