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Clinical Outcome of Posterior Ormocer© Restaurations after 6 Months

#0498

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Introduction

Currently, Ormocer© (organically modified ceramics) based restorative materials are an alternative to conventional composite materials. The bond quality of the restorative material to the tooth substance is one of the factors that determine the longevity and clinical performance of dental restorations. Fractures, marginal leakage, secondary caries and other parameters are associated with failures of these restorations.

Objectives

The aim of the prospective randomized clinical study in a split-mouth design was to compare the clinical performance of a universal adhesive system (Futurabond U, Voco GmbH, Germany) used in both application modes in combination with a nano-hybrid Ormocer© (Admira Fusion, Voco GmbH, Germany) after 6 months.

Methods

In 50 patients, 19 Class I and 81 Class II cavities were placed with at least two restorations per patient (Fig. 1). The adhesive system Futurabond U was used for all the restorations. In one of the two fillings, Futurabond U was used as a self-etch adhesive (test group), in the other after conditioning with phosphoric acid (control group). All fillings were placed under rubber dam following the prospective clinical study protocol (Fig. 2). The restorations were evaluated at baseline, two weeks following placement, and after six months according to the modified FDI criteria for clinical trials. All data were statistically analyzed by Mann-Whitney U test ($p<0.05$).

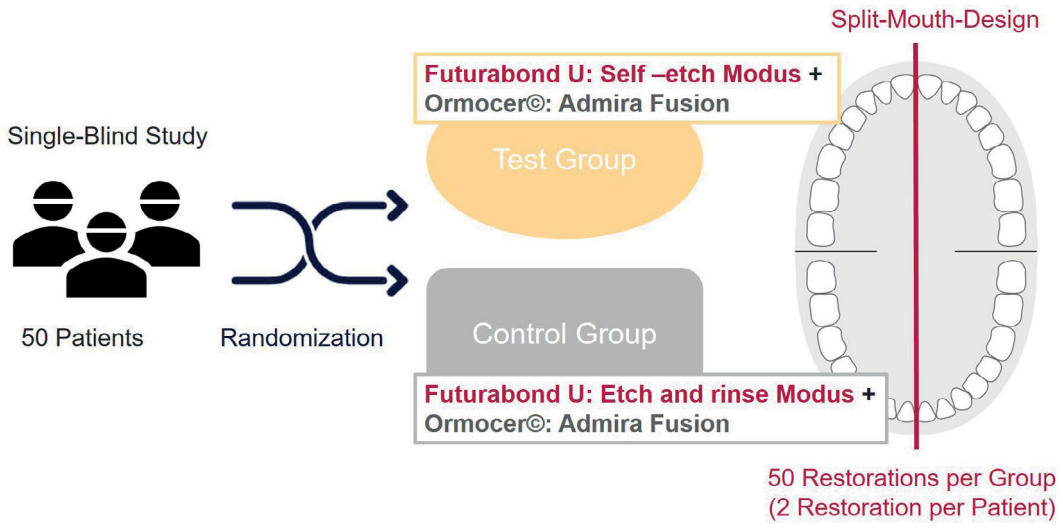

Fig. 1: Study design: 50 patients were enrolled out of 72 screened.

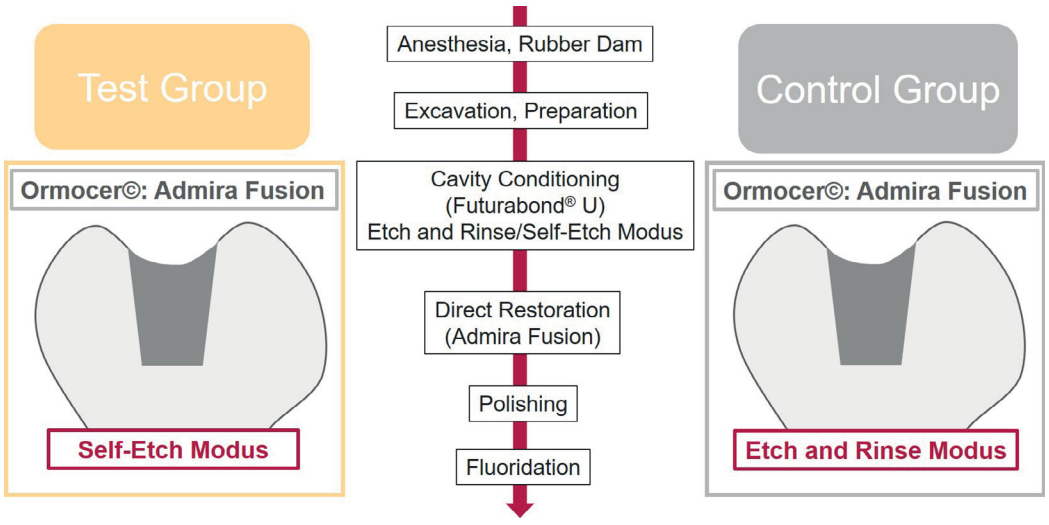

Fig. 2: Test group vs. control group and clinical procedure. The universal adhesive was applied in both application forms: self-etch and etch-and-rinse modus.

Results

After 6 months, 46 patients with 92 restorations were re-examined (92% recall rate) (Fig. 3). The cumulative survival rate for all restorations was 100%. All teeth remained vital and did not show any signs of postoperative sensitivity. Slight fractures (code Bravo) could be evaluated in three fillings (2 control, 1 test group). None of the teeth showed signs of secondary caries. Statistical analysis showed no significant difference between techniques for any of the evaluation criteria ($p>0.05$, Mann-Whitney U test). In both groups, this corresponds to cumulative success rates (control group: 100%; test group: 100%) and annual failure rates (AFR) of 0%.

Fig. 3 a-d: Clinical case assigned to the test group
3a: Situation after screening.
3b: Situation after removal of the existing restorations, caries and cavity preparation.
3c: Situation at baseline,
3d: Situation after 6 months in situ.

Conclusions

After 6 months, the Ormocer© and the different application modes of the universal adhesive used showed no significant impact on the clinical performance of class-I and -II restorations. Furthermore, the universal adhesive Futurabond U might be a promising alternative to other systems.

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