

Postoperative Sensitivity and Bonding Agents (2/04)

Total-etch versus self-etch adhesive: effect on postoperative sensitivity. Perdigao J, Geraldini S, Hodges JS. J Am Dent Assoc 2003;134:1621-1629.

Most dentin adhesives use either the “total-etch” or the “self-etch” technique to bond to tooth structure. The “total-etch” technique utilizes a separate acidic conditioner (e.g., phosphoric acid) that is rinsed off before placing the primer and bonding resin. The newer “self-etch” adhesives use acidic monomers that are not rinsed off after placement and potentially infiltrate dentin to the same depth of demineralization. Also, the relatively lower acidity of the “self-etch” adhesives may not completely remove the smear layer. For these reasons, manufacturers and some researchers believe that less post-operative sensitivity will result with the use of these new adhesives. However, acidic monomers in “self-etch” adhesives may not etch enamel to the same degree as phosphoric acid, which may result in increased marginal discoloration. The purpose of this clinical study was to compare post-operative sensitivity and



marginal discoloration between Class I and II composite resin restorations restored with either a “total-etch” or a “self-etch” adhesive. Sixty-six teeth were restored in 25 patients using Clearfil SE for the “self-etch” adhesive and Prime & Bond NT for the “total-etch” adhesive. Hypersensitivity and marginal discoloration were evaluated at baseline, two weeks, six weeks and six months after treatment. Hypersensitivity was measured using a visual analog scale and response time after subjecting the teeth to compressed air, cold, and masticatory forces. Marginal discoloration was evaluated from color photographs.



Analysis of variance revealed no statistically significant difference in post-operative sensitivity between the “self-etch” and the “total-etch” adhesives at any recall time. Marginal discoloration was absent for all restorations at six months.

DIS Comment: This well-controlled study suggests that the new “self-etch” adhesives may not reduce post-operative sensitivity more than “total-etch” adhesives as originally claimed. Previous reports on the reduction of post-operative sensitivity with “self-etch” adhesives have come from anecdotal or random survey data.¹ Post-operative sensitivity is a complex, multi-factorial condition that may not be simply resolved with any minor change in material or placement technique. Also, six months may not be long enough to differentiate between the two types of adhesives and their ability to reduce marginal discoloration. More clinical research is necessary to substantiate the results of this study.

References

1. Self-etch primer adhesives update. CRA Newsletter 2003;27:1-4.