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Comparison of Alternate Protocols for Placing a Sixth Generation Dental Bonding Agent

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Abstract

When the extraction site has insufficient bone height or volume for an implantation, an autogenously tooth bone block for a socket reconstruction and bone graft can be implemented. In these case studies, we obtained outstanding treatment outcomes using autogenously tooth bone block reconstructing extracted socket and ridge augmentation. This study presents its clinical and radiological findings together with reviews of related literature.

Keywords: Dental adhesives; self-etch primer; Dentin bonding placement protocol

Introduction

Dental bonding adhesives (DBA's) have many different components/ingredients [1] as well as protocols on how to best use them for maximum performance. For many DBA's the primer placement and adhesive placement protocols differ. Studies have been done to compare manufacturer's protocol with alternate ones. Mauna et al. looked at the bonding efficacy of 1-step self-etch adhesives using enamel pre-etching and application of an additional hydrophobic resin layer. They found significant differences in some of their test groups [2]. Ashley ET al.have done considerable studies using various protocols with dentin bonding involving dry bonding, water-wet bonding, and ethanol-wet bonding [3].Ramesh et al. looked at the depth of resin penetration into enamel with three different types of enamel conditioning methods and used confocal laser scanning microscopy (CLSM) to assess the results. They found a significant difference in depth of resin penetration into enamel [4]. CLSM has been used in various studies to assess primer and adhesive penetration and thickness of various dental adhesives into dentin and enamel [5-8].This study investigated the manufacturer's proposed protocol for Prelude Self Etch DBA and some placement protocol alternatives for the primer and adhesive. The purpose of this study was to compare alternate placement protocols of a sixth generation DBA to evaluate if the shear bond strength (SBS) to dentin would be affected.

Material and Methods

This study has been approved by the University of Golden State, metropolis (UCSF) Committee on Human analysis. Development of the informative and Clinical Curriculum: A 10-week interprofessional medical specialty oral health course for college students in medicine, nursing, medicine, associate degreed pharmacy was administered by an knowledge base school team. This course enclosed weekly 1-h lectures for 10 weeks. Four lectures were delivered via pre-recorded on-line lectures, and six lectures (including case shows and discussion session) were delivered in-class. The topics of those lectures enclosed introduction on children's oral health, oral health disparities, and clinical assessment and follow.

Results

One way ANOVA showed significant difference between the Groups in Part 1. ($p<.001$, 95% CI=23.97-28.20). Post hoc tests showed That group 1A had significantly higher SBS than both the adhesive Alternative groups 1B and 1C (Figure 1 and 2). Note the variance as Shown in Table 1 was least for the manufacturers' protocol (group 1A). In Part 2 One-way ANOVA showed no significant difference ($p=.067$; 95%CI=25.45-27.93) between the groups. But post hoc tests Showed that groups 2A, 2B, and 2C had significantly higher SBS than Group 2D but not among themselves (A: P=0.042 CI=-6.96- -0.13; B: P=0.023 CI= -7.39- -0.56; C: P=0.026 CI=-7.29- -0.47). Group D Protocol was the manufacturer's total etch two step using adhesive only (no primer)

Discussion

With the evolvement of newer generations, DBA's primer and adhesive placement protocols differ widely. This can make the bonding process quite confusing to the practitioner especially if one does not closely follow the research and or the manufacturers' recommendations and tries the "one size fits all" approach for DBA usage. Part of the rationale for this study was to evaluate the flexibility of the DBA used in this study. In other words; how forgiving is the material, when manufacturer's instructions are not exactly followed or modified. Part 1 of this study dealt with variant protocols of adhesive application with the primer being placed according to manufacturer's recommended protocol in all groups. Part 2 of this study consisted of the adhesive being placed according to manufacturer's recommended protocol in all groups and the primer application using variant protocols.

Conclusions

Within the limitations of this study it can be concluded that Prelude 6th generation DBA, when placed as described by the manufacturer Protocol resulted in very good bond strength. Finally, it seems that This is a user-friendly DBA system and the primer placement protocol Is somewhat flexible in achieving acceptable bond strengths.

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