Bond Strength Comparison of Color Change Adhesives for Orthodontic Bonding

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Introduction

The introduction of the acid-etch bonding technique by Buonocore in 1955 has led to dramatic changes in the practice of orthodontics (1-3). By the late 1970’s, the bonding of orthodontic brackets became an accepted clinical technique (4-6).

Abstract

This study investigated whether three different color change light-cured orthodontic bonding adhesives have comparable shear bond strengths to a conventional light-cured orthodontic bonding adhesive. The sample of 240 bovine incisors was divided into four groups of 60 each. Each group tested one of four orthodontic bonding adhesives: 3M Unitek Transbond PLUS, Ormco Gréngloo, Ormco Blúgloo, and 3M Unitek Transbond XT (control). The four groups were further divided into two subgroups of 30 with shear bond strength tested at two different times (15 minutes and 24 hours) post-bond. The shear bond strength was measured on a universal testing machine. The data were analyzed by two-way analysis of variance and post-hoc comparisons (Fisher’s PLSD) at the 0.05 level of significance. The average shear bond strength was greater at 24 hours than at 15 minutes for Transbond PLUS, Blúgloo, and Transbond XT. For Gréngloo, the average shear bond strength was greater at 15 minutes than at 24 hours. Gréngloo tested at 15 minutes had the highest average shear bond strength. Gréngloo tested at 24 hours had the lowest average shear bond strength. All four orthodontic bonding adhesives demonstrated bond strengths considered to be clinically acceptable for orthodontic purposes.

KEY WORDS: shear, bond, transbond, gréngloo, blúgloo

Summary of the New 2010 American Heart Association Guidelines for Basic Life Support (CPR)

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Introduction

Each year an estimated 350,000 people suffer a cardiac arrest in the United States and Canada and receive an attempted resuscitation (1). This number does not include victims who suffer an out-of-hospital cardiac arrest where resuscitation is not attempted. The concept of chest compressions and rescue breathing to save victims of cardiac arrest was first introduced to doctors at a meeting of the Maryland Medical Society 50 years ago (2). The first guidelines were issued by the American Heart Association (AHA) in 1966. Since that epic moment, Basic Life Support (BLS) and Advanced Cardiac Life Support (ACLS) have become the centerpieces for emergency responses to life-threatening cardiopulmonary emergencies in medical and dental offices, and in everyday life.

Abstract

Approximately every 5 years, American Heart Association (AHA) experts review emerging scientific evidence and recent clinical experiences and update the AHA guidelines for basic and advanced life support procedures for in-hospital and out-of-hospital victims of life-threatening cardiac events. This article summarizes many of the 2010 changes in those guidelines as they apply to dental healthcare providers (HCP). More detailed information will be available in the near future as these guidelines are fully implemented and instructional materials are released by the AHA. Until they are trained in future AHA or American Red Cross (ARC) basic or advanced cardiac life support (BLS, ACLS) courses in 2011, dentists, dental assistants, dental hygienists, and office staff should continue to rely on the training and information they received in their most recent basic (and/or advanced cardiac) life support training course.
