Shear Bond Strength of Translucent Zirconia and Lithium-Disilicate Glass Ceramic to Dentin using Three Different Surface Treatments

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BY

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DEDICATION

This work is dedicated to

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INTRODUCTION

For decades, the first objective of anterior dental restorations has been to replace tooth structure lost by dental disease in an esthetic manner. Improvements in dental techniques and materials have led to the development of all ceramic restorations[1], which are well suited to change the shape and color of teeth[2,3].

Dental restorations using all ceramic materials in association with adhesive cements have become popular, primarily because of esthetic properties such as translucency, fluorescence & opalescence that better simulate the appearance of natural dentition. Other desirable characteristics include chemical stability, a coefficient of thermal expansion similar to dentin, biocompatibility & high compressive strength[4,5].

The technological evolution of ceramics for dental applications has been remarkable, as new materials and processing techniques are steadily being introduced. The improvement in both strength and toughness has made it possible to expand the range of indications to long-span fixed partial prostheses, implant abutments and implants[6].

Driven by a debatable need for metal-free restorations, the evolution of all ceramic systems for dental restorations has been remarkable. Processing techniques novel to dentistry have been developed, such as heat-pressing, slip-casting and Computer Aided Design – Computer Aided Machining (CAD-CAM) [7].

The ceramic composition of an all ceramic restoration is an important component of an effective bonding. Lithium-disilicate glass ceramic is an etchable ceramic due to its glass content. However,