A COMPARATIVE EVALUATION OF TENSILE BOND STRENGTH AND MICRO-LEAKAGE OF A NOVEL SELF-ADHESIVE FLOWABLE COMPOSITE AND SELF-ETCH ADHESIVE-COMPOSITE SYSTEM – AN IN-VITRO STUDY

ABSTRACT

INTRODUCTION:

The goal in adhesive dentistry is to achieve an adequately strong bonding of the restorative resin to the tooth structure so that there is optimum retention, minimal microleakage and hence, better color stability and clinical longevity of the restoration. A novel self-adhesive flowable composite has been introduced that eliminates both etching and bonding steps in composite restoration and associated time expenditure when treating young children in pediatric dental care.

AIM:

The aim of this in-vitro study is to compare the self-etch adhesive-composite system and self-adhesive flowable composite regarding tensile bond strength to dentin of premolars. Also, to assess and compare the degree of micro-leakage between self-etch adhesive-composite system and self-adhesive flowable composite by using dye technique.

MATERIALS AND METHODS:

120 extracted premolars were collected. 60 samples were mounted in self cure acrylic resin for testing tensile bond strength. The occlusal surfaces were ground using
water cooled diamond disc for 60 samples. 30 samples were restored using self adhesive flowable composite and 30 samples were restored using self etch adhesive composite system. 15 samples were subjected to cyclic loading in each group. The tensile bond strength was measured using universal testing machine. Class V cavity prepared for remaining 60 samples to test microleakage. The cavities were restored using self etch adhesive composite (30 samples) and self adhesive flowable composite (30 samples). 15 samples were subjected to cyclic loading in each group. Microleakage was assessed using stereomicroscope after basic fuschin dye immersion.

RESULTS:

The results showed significant difference between two groups of tensile bond strength  \( (p < 0.05) \), self adhesive flowable composite showed better bond strength than self etch adhesive composite and no significant difference between two groups of microleakage. \( (p > 0.05) \)

CONCLUSION:

The self adhesive flowable composite system is less technique sensitive than self etch adhesive system that may reduce the chair side time in pediatric patients.

KEYWORDS:

Microleakage, self adhesive flowable composite, self etch adhesive composite, tensile bond strength.