

COMPARATIVE STUDY OF LIGHT CURE RESTORATIVE MATERIALS AND GLASS IONOMER: BONDING TO ENAMEL AND DENTINE

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ABSTRACT

Glass ionomer cements were introduced 20 years ago as a restorative material capable of ion exchange and adhesion to tooth structures as well as a source of continuing fluoride release. Late in 1980s the resin modified glass ionomer (RMGI) was introduced combining physical and mechanical properties of resin composite, in addition to fluoride release associated with glass ionomer. The resin modifications have not adversely affected the short term bonding efficacy to dentine, but rather considerably higher bond strength to tooth structures than conventional glass ionomer was reported. Recently, materials that set by polymerization, based on resin, modified to include acid functional group and also contain basic glasses were developed. These were termed polyacid modified composite resin (PMCR) or compomers. These materials show interesting properties and exhibit promising potential as restorative materials. In this study, shear bond strength of these materials using Ketac Fil as glass ionomer, Vitremer as RMGI, Dyract as PMCR and *Z/100* composite was determined after bonding each material to dentine and enamel using cylindrical tube tested in universal testing machine at a cross head speed 5 mm/min after 7 days storage. Enamel shear bond strength was significantly higher between Ketac Fil (1.7 Mpa) and Dyract (5.5 Mpa), Ketac Fil and Vitremer (5.2 Mpa), and Ketac Fil and *Z/100* (7.60 Mpa) at 5% level. The mean distribution in shear strength on dentine revealed insignificant difference at 5% level among the various types of materials. It was concluded that the bond strength of RMGI and PMCR on enamel was closely similar to that of composite. In contrast, the bond strength of RMGI and PMCR on enamel was significantly higher than that of conventional glass ionomer. On dentine, all tested material types had similar bond strength.