of finer glass particles, anhydrous polyacrylic acids of high molecular weight and high powder to liquid mixing ratio. These materials are more easily handled than conventional glass ionomers. Due to their high viscosity, when long mixing times are used they can be condensed into the cavity in a manner similar to amalgam. High viscosity glass ionomer has improved physical properties as compared to conventional glass ionomer, and hence suitable for class II restorations of primary teeth. If mechanical properties are to be optimized the materials should be mixed in correct powder to liquid ratio to get putty like consistency.

Compomer

A compomer is a polyacid-modified resin based composite with constituents derived from composite and glass ionomer. The wear resistance and mechanical properties of compomers are less than composite resin but the fluoride release and uptake are greater. In vitro studies have shown it can prevent demineralization of adjacent enamel but to a lesser extent as compared to dentin. Ease of handling is compomer’s greatest asset which led to its popularity. Water is sorbed into compomers after they contact saliva and produces the small acid-base reaction. The auxiliary setting reaction produces increasing strength and setting expansion of all compomers as they age. All compomers require an adhesive bonding agent to bond to the tooth, reducing fluoride released from the restoration into prepared tooth. According to manufacturers enamel etching is not required for placement of compomers. Compomers have shown relatively adequate adhesion to unetched enamel and dentin. Elimination of acid etch step is an advantage when used for very young children. However laboratory studies have shown higher bond strength and more intimate marginal adaptation of compomers when enamel was acid etched with 35 to 40% phosphoric acid.

The use of compomer is advised only in patients with low to moderate caries risk. Favorable clinical outcomes have been observed in class II cavities suggesting it as amalgam alternative in primary teeth.

Resin composites

Resin composites have been increasingly used for the restoration of posterior primary teeth. Microfilled composites are susceptible to more fracture in class II cavities due to lower mechanical properties. Hence hybrid composites with nanofillers are preferred. A number of studies have evaluated the success of posterior composite resins as compared to other restorative materials in primary teeth. Restoration longevity is significantly low in younger age groups. The success of composite resin could be compromised if it is a replacement for amalgam restoration. The size is essentially predetermined by the size of the amalgam preparation. Composites placed in these preparations have a shorter life span due to heavy occlusal loading. In addition the preparations must be extended to include all the corrosion products of amalgam covering the amalgam and dentin. Corrosion products interfere with bonding and should be eliminated before applying the bonding agent.

Marginal deterioration, discoloration and secondary caries are the primary reasons for the replacement and failure of posterior resin composite restorations. These materials are technically sensitive. The clinical performance is based upon good case selection and skilled operator. It is a good restorative option in children who are cooperative and have low risk for caries. The existing clinical trials indicate that composite is recommended...