



Type of the Paper (Editorial)

Recent Advances Glass-Ionomer Dental Cements

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Abstract: There is a continuous demand of progression in techniques and materials used in endodontics. Glass ionomer cements (GICs) improvements includes; compomers, condensable/self-hardening GIC, low viscosity/ flowable GIC, fiber-reinforced GIC, chlorhexidine-impregnated GIC, proline-containing GIC, nano-bioceramic-modified GIC, and calcium aluminate GIC, Nano-resin-modified GICs (nano-RMGICs).

Keywords: Ceramics; glass-ionomer; endodontics.

Glass ionomers is as material of choice for a diverse yet distinctly typical procedures ranging from restoration to tooth repair. Glass ionomers are appropriate to many restorative conditions, both as standalone restoratives and in conjunction with resin composite. While glass ionomer cement use as a restorative material, it has some disadvantages. This article highlights about the recent advances and indication of recently introduced modified glass ionomer cements.

Various alterations in GICs could be summarized are as follows:

1. Compomer; It is a combination of composite and ionomer.
2. Self-hardening GIC; which are mainly activated resin-modified glass ionomer cements with no light curing at all. It is used mainly in pedodontics for cementation of temporary metallic crowns, metallic bands, orthodontic brackets and space maintainers.
3. Flowable GIC; It is basically utilized as limner, pit and fissure sealer, endodontic sealers, due to their increased flow.
4. Bioactive glass; formed by acidic dissolution of glass, there is creation of a layer rich in calcium and phosphate around the glass, such a glass can form chemical bioactive bonds between cement and investing bone leads to integrated with the bone. It could be used in retrograde filling, perforation treatment, bone augmentation and cementation of implant.
5. Fiber-reinforced GIC; mainly introduced to improve the depth of cure, reduced polymerization shrinkage, improved wear resistance, and increase in flexural strength of GIC, alumina fibers are mixed with glass powder. This technology is called the polymeric rigid inorganic matrix material, which involves incorporation of a continuous network/scaffold of alumina and silicon di oxide ceramic fibers.
6. Proline-containing GIC; It composed of an amino acid to improve surface microhardness properties. This formulation of lead to a fast-set glass ionomer, with high water sorption without reduction in amount of fluoride release. The material showed a promise biocompatibility, it could be used as a bone cement.
7. Calcium aluminate GIC; It considered as a hybrid composition composed of calcium aluminate and glass-ionomer, it used mainly for cementation of fixed prosthesis. The

calcium aluminate lead to decrease in microleakage, stability, high strength and excellent biocompatibility.