ABSTRAK

Radiopasitas bahan gigi pada tindakan restorasi berperan penting dalam penentuan diagnosis perawatan, bahan restorasi yang memiliki nilai radiopasitas memadai membantu klinisi untuk mengevaluasi keutuhan restorasi, membedakan karies gigi dari jaringan gigi serta bahan restorasi pada radiograf, mendeteksi kegagalan perawatan, tumpatan *overhanging* dan celah restorasi yang terbuka/*open margin.* Tujuan pada penelitian ini ialah untuk membandingkan nilai radiopasitas pada ketiga jenis *Glass Ionomer Cement* (GIC) yaitu tipe *luting, restorative* dan *lining*, ketiga jenis bahan yaitu *resin-modified glass ionomers* (RMGI)-relyx luting, *conventional glass ionomer* (GC)-ketac universal, *resin-modified glass ionomers* (RMGI)-vitrebond.

Penelitian berjenis *post test only control design,* Sampel terdiri dari 3 kelompok, setiap kelompok terdiri dari 8 buah sehingga total yaitu 24 buah ditempatkan pada *ring mold* silinder dengan ukuran panjang 10 mm dan tebal 2 mm, kemudian dilakukan pengambilan gambar radiograf periapikal digital metode PSP, kemudian dilakukan penghitungan nilai radiopasitas menggunakan aplikasi *Image J*, data yang diperoleh kemudian dianalisa dengan uji *Anova* dan dilanjutkan dengan LSD.

Hasil penelitian menunjukkan terdapat perbedaan nilai radiopasitas antara kelompok *luting, restorative* dan *lining* dengan signifikansi *Anova* 0,001 (<0,05). Urutan nilai derajat radiopasitas terbesar diperoleh kelompok vitrebond (RMGI), kemudian diikuti oleh relyx luting (RMGI) dan ketac universal (GC).

Kesimpulan pada penelitian ini terdapat perbedaan nilai radiopasitas GIC tipe *lining* kemudian diikuti dengan tipe *luting* dan tipe *restorative* menggunakan teknik radiograf periapikal digital dengan aplikasi *Image J.*

Kata kunci : Radiopasitas, GIC, Radiograf Periapikal, *Image J*

ABSTRACT

Radiopacity of dental materials in restorative procedures plays an important role in determining the diagnosis of treatment, restorative materials that have adequate radiopacity value help clinicians to evaluate restoration integrity, distinguish dental caries from dental tissue and restorative materials on radiographs, detect treatment failures, overhanging fillings and open restoration gaps. /open margins. The purpose of this study was to compare the radiopacity values of the three types of Glass Ionomer Cement (GIC) namely luting, restorative and lining types, the three types of materials, namely resin-modified glass ionomers (RMGI)-relyx luting, conventional glass ionomer (GC)-ketac. universal, resin-modified glass ionomers (RMGI)-vitrebond.

The research was a post test only control design, the sample consisted of 3 groups, each group consisted of 8 pieces so that a total of 24 pieces were placed in a cylindrical ring mold with a length of 10 mm and a thickness of 2 mm, then a digital periapical radiograph was taken using the PSP method. then the radiopacity value was calculated using the Image J application, the data obtained was then analyzed by the Anova test and followed by LSD.

The results showed that there were differences in radiopacity values between the luting, restorative and lining groups with an Anova significance of 0.001 (<0.05). The order of the highest degree of radiopacity was obtained by the vitrebond (RMGI) group, followed by relyx luting (RMGI) and universal ketac (GC).

The conclusion in this study is that there are differences in the radiopacity value of GIC lining type followed by luting type and restorative type using digital periapical radiography with Image J application.

Key words : *Radiopacity, GIC, Periapical radiograph, Image J*