Pengaruh waktu perendaman resin pit fissure sealant pada medium kultur terhadap viabilitas sel HaCaT (in vitro)

Bramadita Satya, author

Abstrak

Pit Fissure Sealant berbahan resin merupakan salah satu produk pencegahan karies. Pada penelitian sebelumnya, ditunjukkan adanya pelepasan komponen dan material tersebut ke lingkungannya yang menimbulkan respon hipersensitifitas.
Tujuan : untuk mengetahui biokompatibilitas dari Resin Pit Fissure Sealant terhadap sel keratinosit kulit yang dicerminkan dari viabilitas sel HaCaT.
Material dan Metode: Spesimen Resin Pit & Fissure Sealant dibuat pada cetakan akrilik (N=18; diameter 15mm; ketebalan 1mm) menurut ISO 4049 dan dipolimerisasi dengan UV dari QTH (Quartz Tungsten Halogen) (= 400 nm). Spesimen dipersiapkan dan disterilisasi untuk menghindari kontaminasi dari bakteri atau jamur. Setelah itu, spesimen direndam dalam DMEM (5mL) dan disimpan dalam inkubator (370C) selama 1, 2, dan 7 hari. Kultur sel dipersiapkan pada 96 well dan diinkubasi selama 24 jam. Rendaman spesimen dipaparkan ke setiap well dan diuji tingkat viabilitas selnya menggunakan MTT assay. Tingkat viabilitas sel diukur dengan microplate reader = 490 nm. Signifikansi diukur dengan metode analisis ragam satu arah Anova.
Hasil : Viabilitas sel menurun pada hari pertama dan setelah hari kedua.
Kesimpulan : Waktu perendaman mempengaruhi viabilitas sel, tetapi masih cukup aman untuk digunakan untuk perawatan gigi.
.....
Resin based Pit Fissure Sealant is one of dental caries prevention product. Previous research of resin showed that some components leached into aqueous environment and cause hypersensitivity responses.
Objectives: To observe the biocompatibility of Resin Pit Fissure Sealant due to skin keratinocytes which is determined by viability of HaCaT Cell lines.
Material & Methods : Resin based Pit Fissure Sealant were made in acrylic mould (N= 18; diameter 15mm; thickness 1mm) according to ISO 4049 and polymerized by UV light from QTH (Quartz Tungsten Halogen) (= 400 nm). Specimen were prepared and sterilized to avoid contamination from bacterial or germs. After that, Specimens were immersed in DMEM (5mL) and stored in incubator (370C) for 1, 2, and 7 days. Cell Culture were prepared into 96 well and stored in incubator for 24 hours. The elution of specimens was exposed into every well, and examined the viability of cells by MTT assay. Viability Cell were counted in 490 nm microplate reader. Significance were measured by One Way Anova.
Results : The viability of HaCaT Cell Lines were decreased in first and after second days.
Conclusion : The elution time of Resin based Pit Fissure Sealant affect the viability of HaCat Cell line, but still safe to be used in dental clinic.