Perbedaan Potensi Mutagenik Siler Berbahan Dasar Resin, Silikon, dan Biokeramik terhadap Sel Limfosit (Analisis Ekspresi Protein DNA) = Differences in Potential Mutagenicity of Resin, Silicone and Bioceramic-Based Sealers on Lymphocytes (Protein DNA Expression Analysis)

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Abstrak

Latar Belakang: Siler saluran akar berfungsi untuk mengisi ruang antara gutaperca dengan dinding saluran akar dan harus bersifat biokompatibel terhadap jaringan periapeks. Siler saluran akar merupakan bahan kimia yang berpotensi menyebabkan mutasi yang dapat dilihat dari ekspresi protein sel tersebut. Tujuan: Mengetahui dan membandingkan potensi mutagenitas siler resin, silikon, dan biokeramik terhadap perubahan ekspresi protein sel limfosit manusia. Metode: Sembilan sampel dari setiap kelompok siler sebanyak 2 ml yang terdiri atas bahan siler dan darah diinkubasi selama 1, 3 dan 7 hari. Kemudian dilakukan isolasi sel limfosit dan pemisahan protein dengan metode elektroforesis. Profil pita protein diobservasi dan data dianalisis secara statistik dengan Kruskal-Wallis dan post-hoc Mann-Whitney. Hasil: Tidak terdapat perbedaan bermakna secara statistik terhadap pembentukan pita protein antara ketiga bahan siler berbahan dasar resin, silikon dan biokeramik. Namun, terdapat perbedaan bermakna antara kelompok siler resin dan silikon pada hari pertama dan ketiga, dan antara kelompok siler silikon dan biokeramik pada hari pertama. Kesimpulan: Terdapat perbedaan potensi mutagenik pada hari pertama, siler resin lebih berpotensi mutagenik diikuti oleh biokeramik kemudian siler silikon. Pada hari ketiga, biokeramik lebih berpotensi mutagenik diikuti oleh resin kemudian silikon. Pada hari ketujuh, biokeramik lebih berpotensi mutagenik diikuti oleh resin dan silikon.

.....Background: Root canal sealers serves to fill the space between the gutta percha and canal wall must be biocompatible with periapical tissue. Root canal sealers are chemicals agent that potentially cause mutations that can be seen from the protein expression of the cells. Objective: To know and compare the potential mutagenicity of resin, silicone, and bioceramic sealers on expression of proteins of human lymphocyte cells. Methods: Nine samples from each group sealer as much as 2 ml of blood are incubated for 1, 3 and 7 days. Then the isolated lymphocytes are observed for protein separation by electrophoresis method. Profile of protein bands observed and data were analyzed statistically by Kruskal-Wallis and post-hoc Mann-Whitney. Results: there is no statistically differences in the formation of protein bands among the resin, silicone and bioceramic sealers. However, there is a statistically differences between the resin and silicone on the first and third, and between silicone and bioceramic on the first day. Conclusion: There were differences in the potential mutagenicity on the first day, resin is more potentially mutagenic followed by bioceramic then silicone. On the third day, bioceramic is more potentially mutagenic followed by resin then silicone. On the seventh day, bioceramic is more potentially mutagenic followed by resin and silicone sealers.