Jumlah pelepasan bisphenol-A pada resin adhesif ortodonti dalam larutan klorheksidin glukonat = Bisphenol-A release from orthodontic adhesive resin in chlorhexidine gluconat solution

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Abstrak

Tujuan: mengetahui jumlah pelepasan Bispheno-A (BPA), yakni substansi yang memiliki efek sitotoksis pada Resin Adhesif Ortodonti, setelah perendaman larutan obat kumur Klorheksidin Glukonat dan saliva buatan. Metode Penelitian: 66 lempeng silindris Resin Adhesif Ortodontik direndam dalam dua larutan berbeda yaitu , (1) Klorheksidin Glukonat dan (2) Saliva buatan. Perendaman dilakukan pada beberapa waktu berbeda yaitu, 1 jam, 7 hari, dan 30 hari. Dihitung pelepasan BPA pada kedua kelompok menggunakan metode Liquid Chromathography-Mass Spectrometry (LC-MS/MS). Hasil: Diperoleh pelepasan BPA dari Resin Adhesif Ortodonti pada larutan obat kumur Klorheksidin Glukonat 1 jam: 0,21 ng/ml, 7 hari: 0,32 ng/ml, 30 hari: 0,78 ng/ml, sedangkan pada saliva buatan 1 jam: 0,19 ng/ml, 7 hari: 0,53 ng/ml, 30 hari: 1,41 ng/ml. Kesimpulan: Jumlah BPA yang terlepas dari Resin Adhesif Ortodonti pada perendaman larutan obat kumur Klorheksidin Glukonat dan saliva buatan selama 1 jam, 7 hari dan 30 hari, berada di bawah dosis toleransi harian BPA (< 1.52 ng/mL).

.....Objective: to determine the amount of BPA, cytotoxic substance found in orthodontic adhesive resin, after immersion in a solution of chlorhexidine gluconate mouthwash and artificial saliva. Research Methods: 66 Orthodontic adhesive resin cylindrical plates were immersed in two different solutions: (1) Chlorhexidine Gluconate, (2) artificial saliva, for 1 hour, 7 days, 30 days. In each experimental group, the BPA release in the solution was calculated using LC- MS/MS. The release of BPA in both groups was calculated using the Liquid Chromathography-Mass Spectrometry (LC-MS/MS). Results: The release of BPA from Orthodontic Adhesive Resin was obtained in the Chlorhexidine Gluconate mouthwash solution, 1 hour: 0.21 ng/ml, 7 days: 0.32 ng/ml, 30 days: 0.78 ng/ml, while in artificial saliva, 1 hour: 0.19 ng/ml, 7 days: 0.53 ng/ml, 30 days: 1.41 ng/ml. Conclusion: The amount of BPA released from the Orthodontic Adhesive Resin by immersion in a solution of Chlorhexidine Gluconate mouthwash and artificial saliva for 1 hour, 7 days and 30 days, was below the daily tolerated dose of BPA (< 1.52 ng/mL).