The Effect of milk or its combination with tea and 0.2% NaF on dental enamel demineralization analyzed by micro computed tomography

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Abstrak

Efek susu, kombinasinya dengan teh, dan NaF 0,2% terhadap demineralisasi email gigi: analisis microcomputed tomography. Fluor dan kalsium berperan penting dalam pencegahan karies gigi, karena dapat menghambat demineralisasi dan meningkatkan remineralisasi Tujuan: Menganalisis efek dari susu sendiri dan kombinasi dengan teh, dan NaF 0,2% pada demineralisasi email gigi menggunakan micro-computed tomography (micro-CT). Metode: Pada bagian koronal 40 gigi premolar manusia yang telah diekstraksi, dibuatkan region of
interest. Permukaan oklusal tiap gigi tersebut ditutupi stiker 3x5 mm2 dan semua permukaan lainnya ditutupi dengan pernis tahan asam. Gigi-gigi yang telah dipersiapkan ini secara acak dan dialokasikan ke dalam empat kelompok yang direndam dalam larutan remineralisasi selama 26 menit, yakni: Grup A, susu; Grup B, susu dan teh; Grup C, susu dan NaF 0,2%; dan Grup D, deionized air (kontrol). Hasil: Setelah 3 hari perendaman dalam larutan buffer pada pH 4,4, dilakukan pemindaian dengan micro-CT. Nilai rata-rata grayscale dan standar deviasi secara berurutan: 98,1 ± 24,0; 90,8 ± 9,1; 92,6 ± 21,4; 81,1 ± 20,3. Nilai rata-rata grayscale yang berbeda bermakna secara signifikan antara empat kelompok tersebut (p<0,05), kecuali antara kelompok A dan B dan antara kelompok A dan C. Simpulan: Topikal aplikasi dengan susu saja menunjukkan efek perlindungan yang lebih tinggi terhadap demineralisasi dibandingkan dengan aplikasi sinergis susu dengan teh dan, susu dengan, 0,2% NaF.
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Fluoride and calcium play an important role in the prevention of dental caries, promoting the inhibition of demineralization and the increase of remineralization. Objective: To investigate the effects of milk with/without the combination of tea and 0.2% NaF on enamel demineralization using micro-computed tomography (microCT). Methods: The coronal parts of 40 extracted sound premolars were prepared as tooth blocks. An unvarnished occlusal surface window was created for each tooth by covering the occlusal surface with a 3x5 mm2 sticker and painting all other surfaces with an acid-resistant varnish. These blocks were randomly allocated into four groups that were immersed in remineralizing solutions for 26 minutes: Group A, milk; Group B, milk and tea; Group C, milk and 0.2% NaF; and Group D, deionized water (control). Results: After 3 days of immersion in a buffered demineralization solution at pH 4.4, micro-CT scans were taken. The mean grayscale values and the standard deviations are: 98.1 ± 24.0; 90.8 ± 9.1; 92.6 ± 21.4; 81.1 ± 20.3, respectively. The mean grayscale values were significantly different among the four groups (p<0.05), except between groups A and B and between groups A and C. Conclusion: Topical application with milk alone showed a higher protective effect against demineralization compared to the synergic application of milk and tea and milk and 0.2% NaF.