PENGARUH SURFAKTAN 0,4% DALAM SODIUM ASKORBAT 35% TERHADAP DIAMETER TUBULUS DENTIN DAN KOMPOSISI MINERAL DENTIN GIGI PASCA *BLEACHING* INTRAKORONAL DENGAN HIDROGEN PEROKSIDA 35%

INTISARI

Perawatan *bleaching* intrakoronal dengan teknik *walking bleach* menggunakan bahan hidrogen peroksida (HP) 35% yang dimasukkan ke dalam kamar pulpa. Hidrogen peroksida menyisakan radikal bebas yang memiliki efek samping pada gigi. Pemberian antioksidan seperti sodium askorbat (SA) setelah prosedur *bleaching* diharapkan mampu meminimalisir efek samping tersebut. Penelitian ini bertujuan untuk mengetahui pengaruh penambahan 0,4% surfaktan dalam sodium askorbat 35% terhadap tubulus dentin dan komposisi mineral dentin gigi pasca *bleaching* intrakoronal dengan hidrogen peroksida 35%.

Penelitian ini menggunakan 12 gigi premolar mandibula. Bagian mahkota dipotong 4 mm secara horizontal, kemudian difiksasi dengan resin akrilik kuring dingin. Diameter tubulus dentin, serta kandungan kalsium dan fosfor diamati dengan *scanning electron microscopy* (SEM) EDX pada permukaan dentin yang ditandai dengan pensil sebelum perlakuan *bleaching*. Bahan *bleaching* HP 35% selanjutnya diaplikasikan pada permukaan dentin selama 120 jam. Sampel dibagi menjadi 3 kelompok perlakuan. Kelompok A tidak diaplikasi SA, Kelompok B diaplikasi SA 35% selama 5 menit kemudian dicuci, Kelompok C diaplikasikan SA 35% kombinasi surfaktan selama 5 menit kemudian dicuci. Sampel penelitian diamati kembali dengan SEM EDX untuk membandingkan diameter tubulus dentin dan komposisi mineral dentin pasca perlakuan.

Hasil penelitian menunjukkan diameter tubulus dentin lebih kecil pada sampel dengan aplikasi SA 35% kombinasi surfaktan. Hasil uji ANAVA satu jalur menunjukkan tidak terdapat perbedaan penambahan 0,4% surfaktan dalam sodium askorbat 35% terhadap komposisi mineral dentin gigi pasca *bleaching* dengan hidrogen peroksida 35%. Kesimpulan penelitian adalah penambahan surfaktan pada SA mencegah pelebaran diameter tubulus dentin gigi pasca *bleaching*, namun tidak berpengaruh terhadap komposisi mineral dentin.

Kata Kunci : hidrogen peroksida; tubulus dentin; mineral dentin; sodium askorbat; surfaktan.

THE EFFECT OF 0,4% SURFACTANT IN SODIUM ASCORBATE 35% ON DENTIN TUBULUS DIAMETER AND MINERAL COMPOSITION AFTER INTRACORONAL BLEACHING WITH HYDROGEN PEROXIDE 35%

ABSTRACT

Intracoronal bleaching with the walking bleach technique uses 35% hydrogen peroxide (HP) which is put into the pulp chamber. Hydrogen peroxide leaves free radicals that have side effects on teeth. Application of antioxidants such as sodium ascorbate (SA) after bleaching procedure is expected to minimize these side effects. This study aims to determine the effect of 0.4% surfactant in 35% SA to dentinal tubule and dentin mineral composition after intracoronal bleaching with 35% hydrogen peroxide.

This study used 12 human lower premolar. Crown was cut 4 mm horizontally, and fixated with self curing acrylic resin. Dentin surface whose to be observed for dentinal tubule diameter, calcium and phosphorus content with scanning electron microscopy (SEM) EDX is marked with a pencil. Bleaching agent which was 35% HP then applied to the dentin surface for 120 hours. Sample was divided into 3 groups. Group A was not applied SA; Group B was applied 35% SA for 5 minutes the washed; Group C was applied 35% SA with surfactant for 5 minutes then washed. The study sample was then re-examined with SEM EDX to compare dentinal tubule diameter and mineral composition of the post treatment dentin.

Result showed that the dentinal tubule diameter was smaller in sample with application of 35% SA plus surfactant. Oneway ANOVA test results showed that there was no difference in the addition of 0.4% surfactant in 35% SA to mineral composition of teeth after bleaching with 35% HP. Conclusion of this study is addition of surfactant in sodium ascorbate impede widening dentinal tubule diameter after bleaching, but does not affect mineral composition of dentin.

Keywords : hydrogen peroxide; dentinal tubule; dentin mineral; sodium ascorbate; surfactant.