Perbandingan efek antibakteri nanopartikel perak dengan teknik sterilisasi ulang menggunakan autoclave terhadap porphyromonas gingivalis (PG) pada temporary anchorage device (TAD) - (uji in vitro) = Comparison of antibacterial effects of silver nanoparticles and sterilization technique using autoclave against porphyromonas gingivalis (PG) in temporary anchorage device (TAD) (in vitro)

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Abstrak

Temporary anchorage device TAD yang akan digunakan kembali akibat kegagalan pemasangan reinsertion atau perubahan lokasi pemasangan relocation harus melalui proses sterilisasi ulang. Bakteri Porphyromonas gingivalis PG adalah salah satu bakteri yang ditemukan pada daerah peri ndash; implantitis. Penelitian ini bertujuan untuk mengetahui efek antibakteri nanopartikel perak terhadap PG pada TAD yang disterilisasi ulang menggunakan larutan nanopartikel perak P1 dibandingkan teknik autoclave P2 . Sebanyak 10 buah sampel pada masing ndash; masing kelompok direndam dalam larutan plak buatan dengan dominasi koloni PG ATCC 33277 selama 24 jam dalam suasana anaerob. Sampel kemudian diusap dan dibiakkan pada brusella agar darah selama 24 jam dalam suasana anaerob. P1 disterilisasi ulang dengan direndam dalam larutan nanopartikel perak selama 180 menit, P2 disterilisasi ulang dengan autoclave selama 40 menit pada suhu 1210C 2500F . Setelah sterilisasi ulang, sampel diusap dan dibiakkan kembali dengan teknik yang sama. Koloni PG sebelum dan setelah perlakuan 103 CFU / mL dihitung menggunakan Electronic Colony Counter ECC . Hasil penelitian ini menunjukkan bahwa larutan nanopartikel perak memiliki efek yang sama baiknya dengan autoclave terhadap PG.

.....Objective The aim of this study was to evaluate the number of Porphyromonas gingivalis PG colonies in used Temporary Anchorage Device TAD ndash for relocating or reinserting as the antimicrobial effect of silver nanoparticles solution compared with autoclave re sterilization technique. Materials and Methods Samples were 20 new TADs which separated into 2 groups, P1 and P2. Before re ndash sterilized, samples were immersed in a plaque forming solution dominated with PG ATCC 33277 and cultured under anaerobic condition for 24 hours. The material was obtained from samples using sterile cotton pellet and cultured on Brusella agar plate for 24 hours under anaerobic condition. P1 was re sterilized by silver nanoparticle solution for 180 minutes and P2 was re sterilized using autoclave for 40 minutes in 1210C 2500F . The cultured steps above were repeated to get the number of surviving PG colonies after re sterilization. The number of PG colonies were counted using Electronic Colony Counter ECC . Their antimicrobial activity was evaluated by comparing the number of PG colonies 103 CFU mL before and after re sterilization. Results No surviving PG colony existed of Brusella agar plate on both group after re ndash sterilized. Conclusions Silver nanoparticle solution is as effective as autoclave to againts PG.