

EV0335

ePoster Viewing

Biofilm-related infections

Comparing the effect of hyperpure chlorine-dioxide and conventional endodontic disinfecting agents *in vitro* on *Enterococcus faecalis* intracanal biofilm

G. Agoston¹, A. Herczegh², D. Friedreich³, Z. Lohinnai², D. Szabo¹

¹Semmelweis University- Institute of Medical Microbiology, Budapest, Hungary

²Semmelweis University- Department of Conservative Dentistry, Budapest, Hungary

³Central Institute of Stomatology, Budapest, Hungary

The high purity chlorine-dioxide (ClO₂) has a very potent disinfectant efficacy on oral pathogenic microorganisms and can be used as a root canal irrigant. We investigated the effectiveness of hyper pure chlorine dioxide (ClO₂) solution in comparison to routinely used sodium hypochlorite (NaOCl) and chlorhexidine gluconate (CHX) in the elimination of intracanal biofilm produced by *Enterococcus faecalis*. Extracted human teeth were inoculated with *E. faecalis*. After preparation the root canals were irrigated with ClO₂, NaOCl, CHX or physiologic saline solution for control. Two and 5 days later bacterial samples were collected and streaked onto Columbia agar. CFU/mL were counted by dilution method. The surface of the canal walls were investigated by scanning electron microscope (SEM). Bacteria were detectable in the control group, but not in any of the irrigants groups. There was a massive reinfection 2 or 5 days after irrigation in the control group. The lowest reinfection of the root canals were found after the ClO₂ treatment. These findings were confirmed by SEM images too. ClO₂ eliminates intracanal biofilm and keeps canal nearly free from bacteria. We propose the use of high purity ClO₂ as a root canal irrigant in clinical practice.