Cleaning Products and Dental Unit Waterlines (9/03)


Dental unit waterline (DUWL) tubing harbors complex multispecies biofilms that are responsible for high microbial levels at the distal outlet. The purpose of this study was to use an established biofilm laboratory model to simulate biofouling of DUWL to evaluate practical, cost-effective, and evidence-based methods of microbial decontamination. Reproducible biofilms were developed in the model over 14 days; decontamination was assessed using total viable counts and microscopic-image analysis techniques to view the inner surface of the tubing. The study demonstrated that while many disinfectants achieve a sufficient reduction in total viable counts they may not necessarily remove unwanted biofilm from the tubing surface as tested in this laboratory-controlled biofilm model.

DIS Comment: This study evaluated a variety of DUWL disinfectant products and suggested that weekly treatment protocols may not be sufficient to reduce microbial counts to levels that comply with acceptable standards of dental water quality. The authors suggested that daily or continuous treatment of dental unit water might be more appropriate. At the present time, no universal treatment protocol can be recommended. A combination of approaches may offer the best available assurance of high-quality dental treatment water. In addition, periodic monitoring methods should be performed to assess compliance with recommended protocols and identify technique errors or noncompliance. Two options are currently available. Water can be submitted to the microbiology lab or the bioenvironmental engineers for culturing using method 9215 (heterotrophic plate count) as described in Standard Methods for the Evaluation of Water and Wastewater1 or an in-office self-contained system that is equivalent to method 9215 can be used.

Reference