

DENTAL UNIT WATER: CONTAMINATION WITH ORAL BACTERIA AFTER FLUSHING WATER

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Objective: This research evaluated oral bacteria in dental unit water (air-water syringes and high-speed handpieces) from a Dental Clinic at the Faculdade de Odontologia de Ribeirão Preto – USP after flushing water through waterlines.

Methods: Approximately 10.0ml of each water sample was collected from 5 dental units of the Surgery Dental Clinic (air-water syringes and high-speed turbines) in sterile test tubes (25x125mm) after flushing water through waterlines during 30s such as recommended by the CDC - Centers for Disease Control and Prevention and the ADA - American Dental Association. Aliquots of each water sample (1.0ml) were centrifuged at 14,000rpm for 45min at 5°C. The supernatant was discarded and the pellet suspended in 150µl of TE (10Mm Tris-HCl, 1Mm EDTA pH 7.6), followed by the addition of 150µl of 0.5M NaOH and vortexed for 2min. The water samples were analyzed by checkerboard DNA-DNA hybridization technique enables the simultaneous identification of distinct bacterial species in a large number of samples. It was employed 28 whole genomic DNA probes of different oral bacteria and chemiluminescent signals of fluorescein-labeled probes hybridization were visually evaluated by comparison with the standards for the test species.

Results: All water samples from dental unit waterlines after flushing water showed contaminated with some kind of oral bacteria. In water from air-water syringes and high-speed handpieces were found 13 (46.6%) and 12 (42.9%) different oral bacteria, respectively. Furthermore, the oral bacteria prevalent in water from dental units were *Treponema denticola* (9/90%), *Streptococcus gordonii* (6/60%), *Escherichia coli*, *Veillonella parvula* (4/40%), *Streptococcus constellatus* and *Streptococcus oralis* (3/30%).

Conclusion: All water samples from dental unit waterlines were contaminated with some kind of oral bacteria after flushing water for 30s. So, an additional chemical treatment (cleaner/disinfectant) and a periodic control of microbiological quality in dental unit water must be employed for safety of patients and dental team.

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