Pneumonia associated with a dental unit waterline

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In February, 2011, an 82-year-old woman was admitted to the intensive care unit with fever and respiratory distress. She was conscious and responsive. Chest radiography showed several areas of lung consolidation. She had no underlying disease. Legionnaires’ disease was promptly diagnosed by Legionella pneumophila urinary antigen test; a bronchial aspirate was taken for microbiological examination. Oral ciprofloxacin (750 mg every 12 h) was started immediately. Nevertheless, the patient developed fulminant and irreversible septic shock and died 2 days later. An investigation to find the source of L pneumophila infection was initiated.

During the incubation period (2–10 d) our patient had not been exposed to any obvious risk for legionella infection; she left her house only to attend two appointments at a dental practice. Samples were taken from the tap and the high-speed turbine of the dental unit waterlines, from the dental practice’s taps, and from the patient’s home (taps and shower) to investigate possible L pneumophila contamination. All samples from her home were negative on culture, but those from the dental practice were positive for L pneumophila. The sample from the dental practice’s cold-water tap contained 1·5×10³ CFU/L, the sample from the tap of the dental unit waterline 4×10³ CFU/L, and the sample from the tap and the high-speed turbine of the dental unit waterline 6·2×10⁴ CFU/L.

In dental water systems, hot-water systems, spas, and fountains, L pneumophila contamination control must be minimised to prevent exposure of patients and staff to the bacterium. We suggest several control measures: use of anti-stagnation and continuous-circulation water systems; use of sterile water instead of the main water supply in the dental unit waterline; application of discontinuous or continuous disinfecting treatment; daily flushing of all outlets and before each dental treatment; use of filters upstream of the instruments; and annual monitoring of the waterline. Further useful procedures to prevent legionellosis within dental surgeries can be obtained from a dedicated guideline.¹

References


