

PERSISTENCE OF *Legionella pneumophila* serogroup 1 INTO WATER SYSTEM INSTALLATIONS

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Introduction.

Legionella pneumophila serogroup 1 is the principal agent of Legionnaires' disease (LD) and the more frequently isolated from the environment. Persistence of the bacteria into water system installations has been demonstrated in LD hospital associated which has been disinfected several times.

Objectives.

To compare the molecular pattern of different epidemiological markers and the susceptibility to disinfectants of *L. pneumophila* serogroup 1 Pontiac strains, recovered along several years of hot water system installations of 3 LD building associated.

Methods.

We compare the genetic patterns of several *L. pneumophila* serogroup 1 environmental isolates recovered from LD building associated (a hotel, a hospital and a ship), which were hyperchlorinated several times. We use AFLP, PFGE and AP-PCR as the molecular methods. Susceptibility of these strains against five disinfectants (chlorine and 4 products registered in the Plaguicides Register of Spanish Health Ministry) by determination of MIC and MBC, was also compared.

Results.

Identical AFLP, PFGE and AP-PCR pattern and similar MIC and MBC values, were detected for all strains recovered from the same building along the years. For each disinfectant MIC₅₀ and MIC₉₀ values were similar: 2-4 ppm for Neoseptal KK, 8-16 ppm for Spectrus NX 1102, 256 ppm for Sanosil Super 25, 128-512 for Bioguimon and 1.024 ppm for chlorine. The CMB values increased no more than 4 twofold dilutions with respect to CMI values.

Conclusions.

A clon of *L. pneumophila* serogroup 1 Pontiac persisted along the years in the water system installation of 3 different LD building associated, in spite of successive hyperchlorinations. Susceptibility of each clon to disinfectants did not change, in spite of these treatments. All disinfectants showed bactericidal and inhibitory activity. Chlorine was the least effective.