

Retrospective epidemiological review on *L. pneumophyla*

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Studio epidemiologico retrospettivo su *L. pneumophyla*

SUMMARY

During the first annual control on hospital infections, was observed a curious but explainable trend regarding evidence of *Legionella pneumophyla* isolated by water systems in numerous public and private nosocomial structures.

After first massive isolation of *L. pneumophyla* strains at the beginning, a considerable reduction of isolates was noted, due to a program based on control and surveillance of water supplies, with regards to the aspectatives. But, in these last years a recurrent presence of isolates of *L. pneumophyla* was noted, despite all procedures used for the control of these bacteria.

From the first isolation, different epidemiological studies reported data about isolation of *L. pneumophyla* from water supplies in United States (1), Europe (5) and also in Italy (4), and relevant rule of this microorganism as etiologic agent of nosocomial infections is a well known sureness worldwide.

Also microbiological investigations performed during the hospital infection control program, started in 2000 by the Provincial Health Department of Catania showed a curious but understandable tendency on the presence of *L. pneumophyla* in water systems in many public and private nosocomial facilities.

In fact, with regards to the aspectatives, after the first massive isolation of *L. pneumophyla* in the early years, there has been a gradual significant reduction of its impact as a result of corrective actions taken and based on control and surveillance of water supplies (2, 3).

However, lately, despite all procedures used for the control of these bacteria there has been a striking resurgence in the frequency of isolation of *L. pneumophyla*, which has aroused considerable interest.

In order to highlight and then reverse this trend and to avoid future isolation of this organism does not comply with current legislation, we wanted to

take back and compare all the previous data.

During this decade has been given particular attention to the presence of *L. pneumophyla* in water systems for 6 hospitals and 24 nursing homes.

Were first compared the results obtained in the years between 2001 and 2005. Similarly were collected and compared the results obtained from microbiological assays performed every year in the next five years, between 2006 and 2010 from the same facilities (Figure I).

Totally, during the two periods examined were analyzed 428 water samples from 30 facilities.

For the isolation was used the method described in ISO 11731 of 1998 (Water quality - Research and counting of *L. pneumophyla*) on *Legionella* BCYE medium and *Legionella* GVPC Selective agar.

For identification, the strains of *L. pneumophyla* were subjected to serotyping by Oxoid *Legionella* latex test kit (for serogroup 1, serogroups 2-14, and other species). Were not taken into account species of *Legionella* other than *L. pneumophyla*. A total of 60 strains were isolated from *L. pneumophyla* (47%) in the first five years from 128 samples (Table 1) and 24 strains in the subsequent period from 300 samples, covering the years

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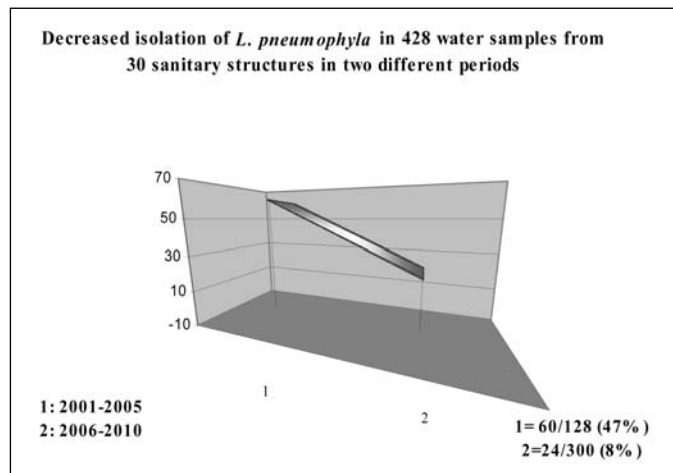
E-mail: matoscan@unict.it

2006-2010 (8%) (Table 2).

Of the 84 strains of *L. pneumophyla* isolated during ten years, 18 (21.42%) belonged to serogroup 1, the other 66 (78.58%) to serogroups 2-14.

Statistical evaluation of two periods confirmed a very significant "p" value ("p" <<0,01; χ^2 test, Yates correction).

The striking reduction of the presence of *L. pneumophyla* in recent years could be explained by the attention shown by the health facilities and by the effectiveness of actions taken to reduce the unwelcome presence of this microorganism in the water.

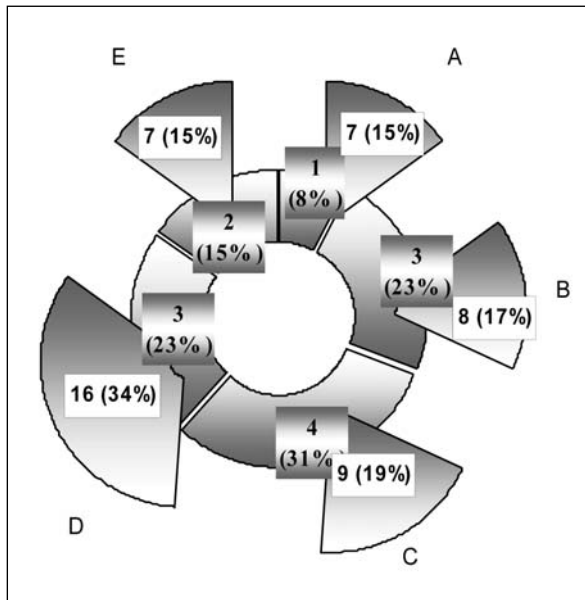


P << 0.01

Figure I.

Table 1. Isolation of *L. pneumophyla* serogroup 1 (internal sectors) e serogroups 2-14 (external sectors) indicated for years of first period (2001-2005)

Rates of isolation for each year:
internal circle % *L. pneumophyla* sg 1
(on 13 isolates),
external circle % *L. pneumophyla* sg 2-14
(on 47 isolates)

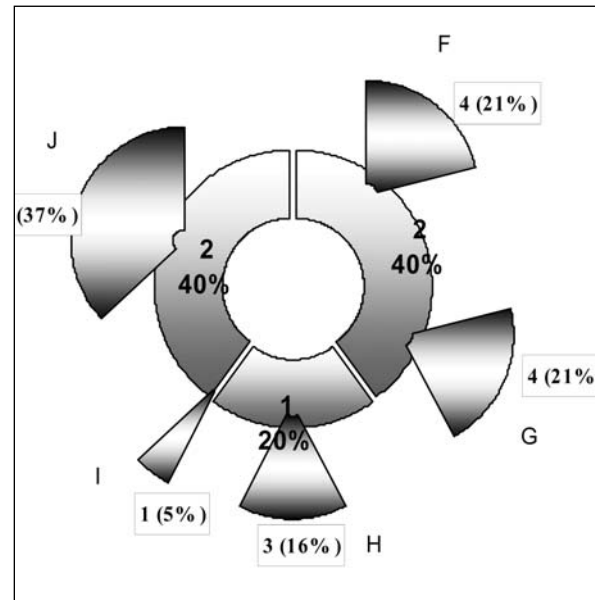


sg.1	sg.2-14	Year
7	7	2001
3	8	2002
4	9	2003
3	16	2004
2	7	2005
13	47	

A=2001, B=2002, C=2003, D=2004, E=2005

Table 2. Isolation of *L. pneumophyla* serogroup 1 (internal sectors) e serogroups 2-14 (external sectors) indicated for years of second period (2006-2010)

Rates of isolation for each year:
internal circle % *L. pneumophyla* sg 1
(on 5 isolates),
external circle % *L. pneumophyla* sg 2-14
(on 19 isolates)



sg.1	sg.2-14	Year
2	4	2006
1	4	2007
0	3	2008
0	1	2009
2	7	2010
5	19	

F=2006, G=2007, H=2008, I=2009, J=2010

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