



ORIGINAL ARTICLE

The typical presentation of an atypical pathogen during an outbreak of Legionnaires' disease in Vila Franca de Xira, Portugal, 2014

A. Dias^{a,*}, A. Cysneiros^a, F.T. Lopes^a, B. von Amann^a, C. Costa^a, P. Dionísio^a, J. Carvalho^a, V. Durão^a, G. Carvalho^b, F. Paula^{a,c}, M. Serrado^a, B. Nunes^{d,e}, T. Marques^f, F. Froes^{a,c,*}, C. Bárbara^{a,g}

^a Chest Department, Centro Hospitalar Lisboa Norte, Lisboa, Portugal

^b Internal Medicine Department, Hospital de Cascais Dr. José de Almeida, Cascais, Portugal

^c Intensive Care Unit, Chest Department, Centro Hospitalar Lisboa Norte, Lisboa, Portugal

^d Epidemiology Department, Instituto Nacional de Saúde Dr. Ricardo Jorge, Lisboa, Portugal

^e Center for Research in Public Health, Escola Nacional de Saúde Pública, Universidade NOVA de Lisboa, Lisboa, Portugal

^f Consultant of Directorate-General of Health, Portugal

^g Institute of Environmental Health (ISAMB), Faculty of Medicine, University of Lisbon, Lisboa, Portugal

Received 28 November 2016; accepted 23 January 2017

KEYWORDS

Legionnaires' disease;
Outbreak;
Clinical presentation

Abstract

Background: An outbreak of *Legionella pneumophila* serogroup 1, with 403 cases was identified on the 7th November 2014 in Vila Franca de Xira, Portugal. Outbreak source was the wet cooling system of a local factory. Hospital Pulido Valente was one of the hospitals receiving patients with Legionnaires' disease (LD).

Methods: We describe the clinical findings and diagnostic methods used among the 43 confirmed or probable cases admitted to our department.

Results: 60.5% were male, mean age was 56.1 ± 13.5 years and tobacco smoking was the most frequent risk factor (76.7%). All patients had fever, 62.8% ≥ 39.5 °C, 72.1% had chills and myalgia/arthralgia and 62.8% had dry cough. Extra pulmonary symptoms were frequent: confusion and headache occurred in 34.9% and gastrointestinal symptoms in 20.9%.

High C-Reactive Protein (55.8% ≥ 30 mg/dL) and hyponatremia (62.8%) were the laboratorial abnormalities most commonly found. Hypoxemia occurred in 55.8% and hypocapnia in 93%. Urinary Antigen Test (UAT) was positive in 83.7% of the cases.

Conclusions: Although not specific, a combination of risk factors, symptoms and laboratory findings can be highly suggestive of LD, even in an outbreak. This should prompt diagnosis

* Corresponding authors.

E-mail addresses: ana.pgrdias@gmail.com (A. Dias), filipe.froes@gmail.com (F. Froes).

<http://dx.doi.org/10.1016/j.rppnen.2017.01.007>

2173-5115/© 2017 Sociedade Portuguesa de Pneumologia. Published by Elsevier España, S.L.U. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

confirmation. Routine use of UAT in less severe cases of community acquired pneumonia might contribute to earlier diagnosis.

© 2017 Sociedade Portuguesa de Pneumologia. Published by Elsevier España, S.L.U. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

Legionella species (spp.) is a relatively common agent of community and hospital acquired pneumonia.¹ It was first identified as the pathogen responsible for a pneumonia outbreak during an American Legion Convention in July 1976 in Philadelphia. Hence its name, Legionnaires' disease (LD).² It occurs in outbreaks or sporadically.^{3,4}

Bacteria of the genus *Legionella* include 56 species and more than 70 serogroups. The most common specie is *Legionella pneumophila*, serogroup 1 which accounts for 90% of cases of LD and was the agent responsible for the 1976 outbreak.^{5,6} *Legionella pneumophila* serogroup 1 is further divided into multiple subtypes.

Although *L. pneumophila* serogroup 1 accounts for 90% of cases in Europe and America, this incidence could be lower in some countries, such as Australia and New Zealand, where *Legionella longbeachae* accounts for 30% of cases.⁷

The incubation period is usually between 2 and 10 days.^{4,8} In about 10% of cases the incubation period can be longer, lasting more than 10 days and up to 19 days.^{9,10}

Diagnosis is based on clinical suspicion together with laboratory confirmation. *Legionella* culture of a respiratory specimen and urinary antigen testing are the most widely used.^{4,8} Although the clinical manifestations are non-specific, a combination of risk factors, symptoms and laboratorial findings can be suggestive of LD.¹¹⁻¹³ It usually presents as severe pneumonia with a particular pattern of multisystem dysfunction. As with other pneumonias caused by "atypical pathogens", respiratory symptoms may not be the most prominent. Neurological and gastrointestinal involvement, myalgia and arthralgia, hepatic cytolysis, hyponatremia, hypophosphatemia and renal failure are frequently present.^{4,11-15}

An outbreak of *L. pneumophila* serogroup 1 with 403 cases, 377 confirmed and 26 probable cases, was identified on the 7th November 2014 in Vila Franca de Xira, located 30 Km north of Lisbon, Portugal.¹⁶ The outbreak started on the 12th October, with peak incidence on the 6th November. Control of outbreak was achieved on the 21st November, with its end declared on the 2nd December (date of start of symptoms of the last case). Of the total of 403 cases, there were 14 reported deaths, leading to a 3.5% overall case fatality rate. Epidemiological investigation identified the most probable outbreak source as the wet cooling system of a local factory. These facilities were shut down on the 9th November.¹⁷ Interestingly it was during this outbreak that the very first probable person to person transmission of LD has been described.¹⁸

During the outbreak several hospitals were appointed to receive patients from Vila Franca de Xira, and Hospital Pulido Valente – Centro Hospitalar Lisboa Norte was one of

them. The authors describe the clinical findings and diagnostic methods used among the 43 confirmed or probable cases of LD admitted in our trust.

Materials and methods

Forty-three patients with confirmed or probable LD were admitted to the Chest Department at Hospital Pulido Valente between the 7th and 15th November 2014. Case definition was based on established criteria by the Legionnaires' Disease Surveillance European Union (EU) which was adopted by the Portuguese Directorate General of Health (DGH) (Table 1).^{8,19}

A questionnaire was applied to all patients transferred from the at risk areas with a clinical suspicion of LD. Data regarding demographics, risk factors, clinical presentation, laboratorial and radiological features and microbiological testing was collected and analyzed.

A smoker was defined as a person who, at the time of the survey, had smoked at least 100 cigarettes in his/her lifetime and currently smokes cigarettes every day or occasionally. An ex-smoker was a person who used to be a smoker but had not smoked at all for at least 6 months at the time of the survey.²⁰

Statistical analysis was performed aimed at a descriptive analysis of the LD cases. More specifically for categorical variables absolute and relative frequencies were calculated, for numerical variables means, medians and standard deviations (sd) were used to characterize their distribution. All data analysis was performed using Microsoft Excel (2007).

Results

Of the 43 patients, 38 (88.4%) were confirmed cases and 5 (11.6%) were probable cases. The total of 43 cases represents around 10.7% of the total 403 cases identified during the outbreak.

All patients received levofloxacin and in our series there were no deaths. Seven patients were admitted to the Intensive Care Unit (ICU) and 11 to the Intermediate Care Unit (ITCU). Invasive Mechanical Ventilation (IMV) was needed in two patients and Non Invasive Ventilation (NIV) in eight patients. All patients were admitted after the outbreak had been declared. The majority was first seen in the Emergency Room (ER) closest to the outbreak source (Hospital de Vila Franca de Xira).

Fever was present for a mean of 4.0 days before patients sought medical assistance. Every patient with suspected LD and epidemiological link was medicated with high dose levofloxacin (750 mg) before being transferred to our hospital.

Download English Version:

<https://daneshyari.com/en/article/8820450>

Download Persian Version:

<https://daneshyari.com/article/8820450>

[Daneshyari.com](https://daneshyari.com)