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EDITORIAL

Typical Presentation of *Legionella pneumophila* Community-Acquired Pneumonia

Legionnaires' disease (LD) is often present as a severe form of pneumonia and is caused by the intracellular pathogen *Legionella pneumophila* which has an atypical presentation with nonspecific radiographic patterns and clinical presentation[1]. The presence of extra-pulmonary complications that could affect the central nervous system, heart, liver, gastrointestinal tract and kidney are the main differences to the typical presentation of bacterial pneumonia[2]. *L. pneumophila* serogroup 1 is the most comment species causing LD in Europe and America, accounting for approximately 90% of the cases[3]. However, *Legionella longbeacheae*, another species of *Legionella*, is involved in approximately 30% of the cases presented in Australia and New Zealand[4,5]. Mortality rate of pneumonia caused by *L. pneumophila* is around 10% but this rate is higher in cases of nosocomial outbreaks and in immunosuppressed patients with approximately 25% of mortality.

LD is endemic in some geographical areas where *L. pneumophila* lives in aquatic habitats. In these conditions LD presents sporadically, but if this microorganism develops in water distribution systems this environmental microorganism accidentally becomes a human pathogen and is associated with outbreaks[1]. The recently published study by Cillóniz et al.[6] regarding seasonal distribution of pathogens involved in community-acquired pneumonia (CAP), found that cases of pneumonia caused by *L. pneumophila* have seasonal variation, summer being the season with more cases of *L. pneumophila* pneumonia reported. On the other hand an observational study showed a similar frequency of *L. pneumophila* in any clinical setting (ambulatory, ward and intensive care unit). Unfortunately there is no specific clinical manifestation to distinguish *L. pneumophila* pneumonia from other types of pneumonia. With the improvement in microbiological diagnostic methods, including the urinary antigen test, the early diagnosis of *Legionella* pneumonia has contributed to a reduction in mortality by this pathogen in the last ten years[7]. Today, clinicians know that the early diagnosis, prompt and adequate antibiotic treatment, and the appropriate management of extra-pulmonary complications in LD are mandatory in order to avoid the high rate of mortality and morbidity related to LD without treatment.

In this issue of the Journal, Dias et al.[8] reported their experience in the outbreak in Vila Franca de Xira, Lisbon, Portugal as the Hospital Pulido Valente was appointed to receive patients from this public emergency. The authors described the clinical findings and diagnostic methods used in a total of 43 cases (38; 88% confirmed and 5; 12% probable) hospitalized. The 43 cases represented 11% of the 403 cases reported in the outbreak. The investigators found that the majority of the patients infected were young, with 74% of the cases being between 35 and 65 years of age, 56.1 years being the mean age of the population. The most prevalent risk factor that the investigators reported was a history of smoking (current or past) which was present in 77% of the infected patients. The presence of fever, chills, myalgia and arthralgia were the most frequent symptoms. One third of the patients suffered neurological complaints and 21% had gastrointestinal symptoms. Laboratory data showed high CRP (mean value 33.8 mg/dL) and a quarter of the cases presented platelet values below 171x 10^9/L, and 56% of the patients presented hypoxemia. All the patients presented evidence of pneumonia in chest x-ray at admission, and in 23% of the cases radiological worsening was found during the first 72 h of admission.

Clinical presentation and chest radiograph findings in LD are not specific in hospitalized patients[9,10], and legionella pneumonia will have typical presentations as with other pneumonias caused by frequent pathogens such as pneumococcus spp., or have atypical presentations as reported in the study by Dias et al.[8]. Clinicians should therefore take into account that combining non-specific findings increases the diagnostic specificity for diagnosis of this pathogen[10–12].

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These entire data reported by the investigators show us the atypical presentation of pneumonia caused by *L. pneumophila*. The urinary antigen test was positive in 84% of the cases in this study. All the patients were treated with high dose levofloxacin in monotherapy. Seven cases needed treatment in the Intensive Care Unit (ICU) and 11 in the Intermediate Care Unit (ITCU). In this series there were no deaths reported.

This finding supports clinical evidence about the atypical presentation of pneumonia caused by *L. pneumophila* and the importance of taking into consideration the clinical presentation, laboratory data and radiological patterns together as this will increase diagnostic specificity.

A rapid clinical presumptive diagnosis of *L. pneumophila* infection in patients presented with severe pneumonia is essential in order to initiate an adequate antibiotic therapy.

References

1. Cunha BA, Cunha CB. Legionnaire's Disease: A Clinical Diagnostic Approach. Infect Dis Clin North Am. 2017;31:81–93.
2. Carratalà J, Garcia-Vidal C. An update on Legionella. Curr Opin Infect Dis. 2010;23:152–7.
3. Viasus D, Di Yacovo S, Garcia-Vidal C, Verdaguer R, Manresa F, Dorca J, et al. Community-acquired Legionella pneumophila pneumonia: a single-center experience with 214 hospitalized sporadic cases over 15 years. Medicine (Baltimore). 2013;92:51–60.
4. Amodeo MR, Murdoch DR, Pithie AD. Legionnaires' disease caused by Legionella longbeachae and Legionella pneumophila: comparison of clinical features, host-related risk factors, and outcomes. Clin Microbiol Infect Off Publ Eur Soc Clin Microbiol Infect Dis. 2010;16:1405–7.
5. Isenman HL, Chambers ST, Pithie AD, MacDonald SLS, Hegarty JM, Fenwick JL, et al. Legionnaires' disease caused by Legionella longbeachae: Clinical features and outcomes of 107 cases from an endemic area. Respirol Carlton Vic. 2016;21:1292–9.
6. Cilloniz C, Ewig S, Gabarrus A, Ferrer M, Puig de la Bella Casa J, Mensa J, et al. Seasonality of pathogens causing community-acquired pneumonia. Respirol Carlton Vic. 2017.
7. Welte T, Torres A, Nathwani D. Clinical and economic burden of community-acquired pneumonia among adults in Europe. Thorax. 2012;67:71–9.
8. Dias A, Cysneiros A, Lopes FT, von Amann B, Costa C, Dionísio P, et al. The typical presentation of an atypical pathogen during an outbreak of Legionnaires' disease in Vila Franca de Xira, Portugal, 2014. Rev Port Pneumol. 2017;23:117–23.
9. Cunha BA. Legionnaires' disease: clinical differentiation from typical and other atypical pneumonias. Infect Dis Clin North Am. 2010;24:73–105.
10. Coletta FS, Fein AM. Radiological manifestations of Legionella/Legionella-like organisms. Semin Respir Infect. 1998;13:109–15.
11. Cunha BA. Legionnaires' disease: clinical differentiation from typical and other atypical pneumonias. Infect Dis Clin North Am. 2010;24:73–105.
12. Fiumefreddo R, Zaborsky R, Haeuptle J, Christ-Crain M, Trampuz A, Steffen I, et al. Clinical predictors for Legionella in patients presenting with community-acquired pneumonia to the emergency department. BMC Pulm Med. 2009;9:4.

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