



Legionnaires' disease: Is it really that rare in Serbia?

Da li je legionarska bolest zaista retka u Srbiji?

To the Editor:

These hot summer days, when mass use of air conditioning systems is increased, we aimed to put into attention the problem of the disease, which escalates in importance as a cause of severe morbidity and mortality in many parts of the world. Is Legionnaires' disease, which is an important public health problem in many countries, really that rare in Serbia? The illness usually presents as a severe pneumonia and may be accompanied by systemic symptoms. It results primarily from exposure to aerosolized water contaminated with *Legionella*. Known risk factors for the disease are increasing age, male sex, chronic underlying lung disease, tobacco smoking, diabetes and a variety of conditions associated with immunodeficiency^{1,2}. Its milder form is also known as Pontiac fever resembling an influenza. An American research showed that residents of long-term care facilities are at higher risk for Legionnaires' disease than the general population³.

Legionella spp. are Gram-negative bacteria found worldwide in fresh water environments and tend to contaminate and thrive in man-made water systems⁴. Historically, the name of *Legionella* spp. and related disease are derived from an event – a large outbreak of pneumonia caused by a previously known organism. It happened 40 years ago in a hotel in Philadelphia (PA, USA), affecting 182 persons (29/182 died). All of them were participants of a convention of the American Legion – a United States wartime veteran service organization⁵.

In the United States of America, the number of reported cases of legionellosis more than tripled between 2001 and 2012⁶. The disease deserved a higher public health priority and guidance across public health agencies for its primary prevention has been strengthened. A formal and comprehensive review of national public health guidelines for prevention of legionellosis is recommended⁶.

In December 2013 issue of the European Respiratory Journal, Editorial referred to Legionnaires' disease in Europe⁷. A map was provided to show a known distribution of legionellosis (Figure 1). While the incidence rate of the disease largely varies in western European countries, the authors ask if all is quiet on the eastern front. While Slovenia, one of the countries with presented highest incidence rates (more than 15 cases *per* million), and Croatia, reported outbreaks of

the disease, no such event has been reported to happen in our settings. Performed diagnostic methods have differed among countries as well with the reference method (culture) used in only 12% of all European cases reported in 2011⁸.

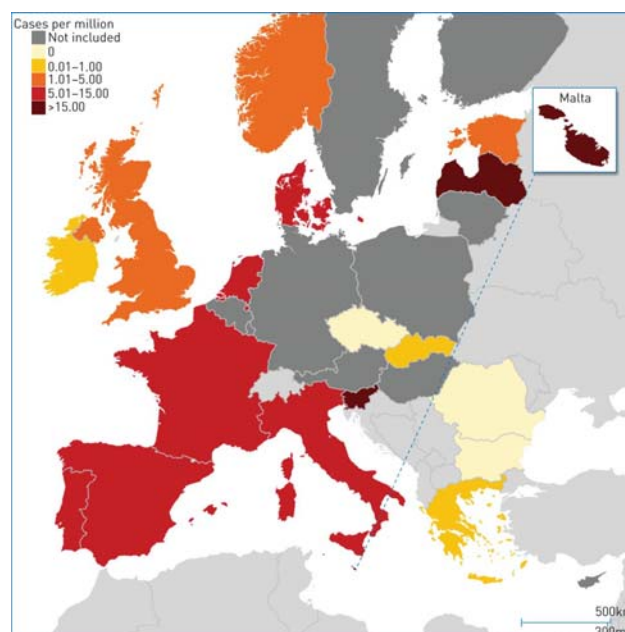


Fig. 1 – Large differences in Legionnaires' disease notification rates among European Union countries.

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Not only general practitioners and pulmonologist should be aware of the disease. All the other clinicians could be interested in the latest case report, which showed that Legionnaires' disease can masquerade acute pyelonephritis, with the complete absence of respiratory symptoms on the very beginning⁹. A 45-year-old man was admitted to hospital with dysuria and the right loin pain and diagnosed with Legionnaires' disease two days after presenting to hospital. He then became critically ill with headache, fever, breathlessness, and respiratory failure with decreasing oxygen saturations. Fortunately, treatment with ciprofloxacin and rifampicin led to a full recovery.

When it comes to treatment, antibiotics with good intracellular action are most effective against any form of legionel-

losis. Azithromycin and levofloxacin are usually considered as the best first-line option^{10,11}. Having in mind doctrinal approach to treatment of community acquired pneumonia, many cases, especially of mild disease, have a chance to be cured even without proof of *Legionella* as a causative agent. Our 55-year-old patient, servicer of cooling towers in Belgrade, who might suffer from a typical Legionnaires' pneumonia, cured and never tested for *Legionella pneumophila*, could be a good example for that. On the other hand, mortality from Legionnaires' disease remains substantial (<10%), even in patients who receive appropriate treatment¹². This appoints to the importance of primary prevention measures of the disease.

The results of a recent review reveal that the most guidelines emphasize adequate design and maintenance of water systems and water temperatures, but guidance regarding routine preventative environmental testing for *Legionella* is not uniform if it exists at all³. The World Health Organization recommends routine environmental testing and some European countries such as Ireland, France and the Netherlands perform it. The testing is also performed in the Austrian capital Vienna, then South Africa and Queensland, Australia⁷. Recommendations of two different health protection agencies in the same American country happen to vary and the variations in frequency of testing for *Legionella* in water systems are also found.

Knowing all these, one could not but ask how frequently legionellosis might appear in Serbia. The answers to some other questions related to domestic settings would be interesting to know, as well. The first one arisen from the 16-year distance: Were the small outbreaks of "influenza" that happened in many underground collective shelters in Belgrade in early spring 1999 – outbreaks of Legionnaires' dis-

ease, or at least its milder form – Pontiac fever? Could the ventilation systems, out of use for years, be properly prepared for sudden use, and were *Legionella* spp. the agents coming from the systems? Finally, how effective is the maintenance of currently used (especially central) ventilation systems and cooling towers in terms of *Legionella* spp?

The actual degree of *Legionella* spp. presentation in water systems in Serbia is not known. Research to inform recommendations on the usefulness of routine environmental testing and other measures for the primary prevention of legionellosis are needed. According to experience of other countries,⁷ cooling towers, hot and cold water systems and recreational pools and spas should be given priority in the control. In the meantime, the accepted guidance for antibiotic treatment of community acquired pneumonia is expected to cure some of sporadic cases of Legionnaires' disease. The fact that the cases mainly stay without diagnostic confirmation for many reasons, may strengthen the idea of "quiet" epidemiologic situation with legionellosis in our settings.

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