

SHORT COMMUNICATION

Epidemiology of legionellosis in Europe and in the Slovak Republic

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Legionellosis is infection caused by legionellae, gram-negative facultative pathogenic bacteria. These hydrophilic bacteria survive in water (natural and man-made) and could be transmitted by water aerosols created from outlets of water systems, air conditioning systems, during hydrotherapy, etc. 49 species of bacteria of genus *Legionella* have been recognised since the first large outbreak of Legionnaires' disease (LD) occurred in 1976.

Legionellosis can be a severe multisystem disease involving pneumonia (LD) or could manifest as a non-pneumonic flu-like disease (Pontiac fever) or asymptomatic. The severity of LD is from mild cough to a rapidly fatal progressive pneumonia with hypoxemia and/or shock and multiorgan failure. Case-fatality rate is usually within the range 10–15 %, higher in immunodepressed patients, heavy smokers, alcoholics, people with cancer, diabetes, chronic respiratory or kidney diseases.

Legionellosis is believed to occur worldwide. In Europe, the European Working Group for Legionella Infections (EWGLI) was established in 1986 and in the year after a European surveillance scheme for travel associated legionnaires' disease (EWGLINET) was introduced by this group. Health Protection Agency (HPA) in London collecting annual standardized reporting data sets provides epidemiological and microbiological information on the total number of cases. Cases are reported as being associated with community, nosocomial or travel-acquired. EWGLINET aims to track all cases in european residents and thereby identify clusters of cases associated with particular sites and initiates and monitors immediate control measures and investigations undertaken at that site.

In the recent years changing in diagnostic methods and improved surveillance have led to a dramatic rise in the number of cases, the highest annual rate was reported in 2002 (10.1/ million). The highest incidences reported Spain (more than 20/million), Denmark, Netherland, France, Italy, England and Wales and Germany. Small epidemics are reported every year, decreasing is the number of large outbreaks with lower case-fatality rate.

In 2004 35 countries reported 4588 cases of legionellosis (incidence 8.24/ million). It is proposed, that real morbidity rate is about twenty times higher. The highest morbidity rates are in age groups older than 50 years, males prevailed females (sex ratio 3:1).

Overall case-fatality rate was 8.63 %. EWGLINET reported 645 cases and 85 clusters contracted by travelling (1066 accommodations), preliminary 705 cases in 2005. Infections were acquired mainly in summer in hotels, campsites or even holiday ships in France, Italy, Spain and Turkey. About 90 % infections were caused by *Legionella pneumophila* (*L.p.*) species, mainly *L.p.1* serological group, preferably diagnosed by urinary antigen test (80 %).

Surveillance of legionellosis and international reporting in Slovakia were set up in 1990. Incidence in Slovakia is the lowest in Europe, no epidemic and no travel related legionellosis were detected. Since 1985 only 48 sporadic cases (31 males, 17 females) of mean age of 45.6 years (14–83 years) have been detected. Except the years 1986 and 1988, 1–7 cases were notified per year, mostly in inpatients suffered from pneumonia, pleuropneumonia, giving morbidity rate of 0.2–1.3 / million. Two patients died, one in causal association. The highest number of patients were in the age group 40–49 years. According to epidemiological analysis all infections were acquired in community, one case possibly abroad. 18 cases were inpatients in hospitals with positive legionella colonization in Bratislava and Trenčín, one case of suspect nosocomial origin. Patients were residents of 7 regions, mainly from Nitra (12), Banská Bystrica (8), Trenčín (7) and Bratislava (6). 47 patients were detected by serological methods, one patient by cultivation and one by urinary antigen detection. Only 8 patients were infected by *Legionella pneumophila* species, serogroup 1, otherwise the most common etiologic agent.

Despite of low incidence, legionellosis in Slovakia require more interest, implementation of routine diagnostic tests (especially urinary test) and prevention of legionella colonization, especially in health-care facilities are needed.

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