EDITORIAL

Infection and autoimmunity: antibodies against *Legionella pneumophila* in the serum of patients with autoimmune rheumatic disorders

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Bacteria of the genus *Legionella* were first described almost 40 years ago. Currently, 58 species of the genus *Legionella* are identified within 3 subspecies. More than half of them can be a human pathogen and cause lower respiratory tract infections known as Legionnaires disease, that is, the pneumonic form of legionellosis or Pontiac fever, a rather mild influenza-like syndrome. The incidence of Legionnaires disease is known only partially, and the disease is believed to be underdiagnosed and underreported.[1]

It is estimated that *Legionella* infection is responsible for 2% to 9% of the cases of community-acquired pneumonia, although these data came from the United States and were based on the studies from the early 1990s.[2] Data from subsequent decades suggested a significant increase in the incidence of the disease. Episodes showed seasonal variation, with more than half of the cases reported in summer and early autumn. The annual incidence is associated with climate changes, and about one-fourth of reported cases are associated with travel.[1] Risk factors for legionellosis are associated with defective immune response. They include age older than 50 years, use of glucocorticosteroids, malignancies related to cytotoxic therapy, hematological malignancies, therapy applied to recipients of organ transplants, and antitumor necrosis factor-α therapy. In addition to immune-compromised patients, those with chronic lung disease and smokers are also prone to *Legionella* infection.[1,3]

In the current issue of the *Polish Archives of Internal Medicine*, a study by Sikora et al[4] has been published reporting the occurrence of antibodies against *Legionella pneumophila* in 165 Polish patients with rheumatoid arthritis, spondyloarthropathy, systemic lupus erythematosus, and a few rare autoimmune rheumatic diseases. Serum immunoglobulin (Ig)-G and IgM-class antibodies against *Legionella pneumophila* subgroups 1–7 were identified in 7 patients (4%) from the study group as compared with 9 individuals (9%) from the control group (comprising 100 healthy volunteers). Thus, the results suggest that the incidence of antibodies in autoimmune patients is similar to or even lower than that in the general population.

In their study, Sikora et al[4] addressed two more general questions. The first one concerned the incidence of Legionnaires disease in Poland and the second—the relationship between the pathogenesis and management of autoimmune diseases and infection. Sikora et al[4] cited epidemiological data indicating that only almost 100 cases of the disease had been reported within 5 years in Poland. Even if these data result from underdiagnosis of legionellosis, the disease is, in fact, rather rare in Poland. The occurrence of antibodies against *Legionalla pneumophila* in 9% of the control group may suggest that some healthy individuals might have had contact with the bacteria or even suffered from a mild form of Pontiac fever, recognized as the common cold.

The second question is more complex. There have been several suggestions that viral infection can trigger or exacerbate the course of systemic lupus erythematosus. The role of infection in the development of other autoimmune rheumatic disease remains unknown, although, historically, this hypothesis was a stimulus for the discovery of such medications as gold salts and sulfasalazin.

Host defense against infectious agents is based on the ability of the immune system to distinguish "nonself" from "self" antigens. Autoimmunity is associated with the lack of such ability. Such viruses as the Epstein–Barr virus, cytomegalovirus, or retrovirus have been proposed to play a role in the development of autoimmunity.[5] Bacterial factors are a cause of comorbidity rather than the origin of autoimmunity in patients

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with autoimmune disorders. A decreased ability to react with bacteria may result from the disease owing to immune system disturbances, but most of the patients with autoimmune disorders become immunocompromised during therapy. Medication with glucocorticosteroids and cytotoxic drugs is generally accepted as a significant risk factor for infection.

The main results of the study by Sikora et al[4] are of high clinical interest. The risk of legionellosis in patients with autoimmune rheumatic diseases is not higher than that in the general population despite profound alterations in the immune system of these patients. On the other hand, a physician treating patients with impaired immunity must always keep in mind their enhanced sensitivity to infection and a possible altered presentation and course of infectious comorbidity. In the case of legionellosis, such presentations of the disease as lung abscess have been reported in patients with a defective immune status.[6,7]

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