

Pandemic Influenza and Pneumonia Due to *Legionella pneumophila*: A Frequently Underestimated Coinfection

TO THE EDITOR—Secondary bacterial pneumonia is recognized as one of the most common causes of death in influenza cases. Coinfection has been found in ~30% of all influenza cases in persons with seasonal influenza, and the pathogens most often involved are *Streptococcus pneumoniae*, *Staphylococcus aureus*, and *Haemophilus influenzae* [1, 2]. However, the role of bacterial coinfection in complicating pandemic flu is not well described, because of the scarcity of data.

From July 2009 through February 2010 in Italy, 2500 confirmed cases of pandemic influenza and 4.5 million cases of influenza-like illnesses were reported to the sentinel surveillance system. Of the confirmed cases of pandemic influenza, 1278 (~50%) were hospitalized. Of the patients hospitalized, 271 (21%) presented with pneumonia, which was attributed to bacterial coinfection in 33 cases.

Of the 33 cases with pneumonia due to bacterial coinfection, 6 (18%) were caused by *Legionella pneumophila* serogroup 1, and both the national legionellosis and the Italian mandatory 2009 A(H1N1) virus surveillance systems [3] were notified. The 2009 A(H1N1) virus reporting system is Web-based and was established in July 2009, whereas the national legionellosis surveillance system was established in 1983. Both systems include information about symptoms and risk factors, such as chronic illness, previous hospitalization, and travel.

The 6 legionellosis cases (5 confirmed and 1 presumptive) were reported from

the end of August to the beginning of November. These patients were aged 25–70 years, with a median age of 53 years and a male-to-female ratio of 5:1. All 6 patients were hospitalized with a clinical picture of pneumonia, and 2 required intensive care unit admission. In the first case, reported in August, the patient developed symptoms after returning from a 1-week travel abroad. All case patients were tested for 2009 A(H1N1) virus (by reverse-transcription polymerase chain reaction test) and for *Legionella* (by urinary antigen test). Five patients had positive results for both assays, whereas 1 had positive results for 2009 A(H1N1) virus and *Legionella* serology (single titer) and therefore was classified as a presumptive case. Only 2 patients reported an underlying condition (diabetes), and all 6 patients fully recovered.

With prompt identification of the bacterial etiology of pneumonia, appropriate treatment can be started with both antibacterial therapy and antiviral medications. Therefore, the length of hospital stay and the mortality of both pandemic and seasonal influenza can be reduced.

The emergence of the new virus strain 2009 A(H1N1) has been a unique opportunity to investigate the etiology of bacterial coinfection during a pandemic. The cases described in this report do not derive from a systematic ascertainment of all pneumonia cases associated with pandemic influenza, and the number might be underestimated, because the decision to perform etiological diagnosis rests with the individual physician. However, 6 legionellosis cases in a total of 33 bacterial coinfections may indicate that *Legionella* is involved more often than expected. In addition, our findings highlight that cross-linkage of different surveillance systems can be a useful method to quantify and to describe pneumonia cases related to influenza.

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