An Unusual Case of Legionellosis

Abstract

Legionella species is a common cause of community-acquired pneumonia. However disease due to L. pneumophila serogroup 13 is rare and has not previously been reported in Ireland. It may not be detected by routine Legionella antigen and antibody kits. Due to these limitations, early culture should be considered when legionellosis is suspected. The potential therapeutic benefit of quinolones in the management of this disease is also illustrated.

Case Report

A previously well 55 year old man was admitted to hospital with severe community acquired pneumonia, following a ten day history of malaise and progressive dyspnoea. Significantly, he reported regular outdoor hot tub use locally, with no recent travel. Chest X-Ray showed bilateral consolidation (Figure 1). Blood results demonstrated neutrophilia, hyponatraemia, hepatic dysfunction, and mild renal impairment. Intravenous coamoxiclav and clarithromycin were commenced. Despite treatment, he became critically unwell with type II respiratory failure, acute respiratory distress syndrome and worsening renal function. Coamoxiclav was empirically escalated to piptazobactam and glycopeptide added. He was transferred to the intensive therapy unit, requiring high frequency oscillatory ventilation and continuous venovenous haemofiltration. Initial investigations (routine sputum culture not including Legionella media, pneumococcal urinary antigen, atypical pneumonia serology including Legionella total antibody) did not indicate a causative pathogen. L. pneumophila serogroup 1 antigen was not detected in a urinary specimen using a rapid immunochromatographic assay (Binarx®).

Due to a high index of suspicion, the sample taken at day 10 post admission was sent to the Scottish Legionella Reference Laboratory, Glasgow. Using indirect immunofluorescent antibody test (IFAT) this tested positive, with a serum titre of 1:256. Convalescent serology taken at day 63 post admission had a titre of 1:4012. The species was identified as L. pneumophila serogroup 13. Legionella spp were not subsequently detected from water samples taken from the hot tub and cultured by the Public Health Microbiology Laboratory, St. Finbarr’s Hospital, Cork.

ELISA kits are extensively utilised for the serological diagnosis of Legionnaires Disease and have been shown to be at least as sensitive as immunofluorescence assays. However, not all serogroups may be tested for, therefore infections by non-serogroup 1 strains may not be identified, as illustrated by this case. Other methods which may identify cases of other Legionella species and serogroups include culture of respiratory specimens and serological assays.

Macrolides are traditionally the treatment of choice for legionellosis, however quinolones are more active in vitro than macrolides against Legionella species. Clinical studies comparing levofloxacin to a macrolide in cases of L. pneumophila pneumonia show L. pneumophila therapy is associated with faster recovery and shorter hospital stay. No difference in complications or mortality has been demonstrated. No studies have been performed to compare treatment regimens in non-serogroup 1 disease, perhaps due to infrequent diagnosis. Although our patient was treated with a macrolide from day 10 of symptoms, clinical improvement was only noted following the addition of a quinolone. This case highlights the limitations of screening serological and antigen detection assays in detecting infection due to Legionella species, although reference laboratory IFAT may be useful for diagnosing non-serogroup 1 infection. Early culture of respiratory specimens on Legionella-selective media should be considered when this diagnosis is suspected.
Acknowledgements
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References