Letters to the Editor

Detection of Legionella pneumophila Serogroup 1 Antigen in Bronchoalveolar Lavage Fluid by an Immunochromatographic Assay

Recently, an immunochromatographic assay for rapid qualitative detection of Legionella pneumophila serogroup 1 antigen in urine specimens has become available (NOW Legionella urinary antigen test; Binax, Portland, Maine). We have previously shown that this test is of clinical value in providing a rapid diagnosis of Legionnaires’ disease, especially in patients with severe community-acquired pneumonia (CAP) in an outbreak setting (5). There are no reports on the applicability of the test to specimens other than urine. Here we report results from a 32-year-old human immunodeficiency virus (HIV)-infected man hospitalized with CAP of the right upper lobe. Bronchoalveolar lavage (BAL) was performed on the third day of admission because the patient did not respond to empirical therapy with amoxicillin. Gram staining of the BAL fluid revealed no apparent bacterial pathogens. Ziehl-Neelsen staining showed no acid-fast bacteria. Giemsa and toluidine blue stainings were negative for fungi. A urine specimen obtained on the fifth day of admission tested positive with the NOW Legionella urinary antigen test. At that time, culture of the BAL fluid yielded penicillin-resistant Streptococcus pneumoniae and β-lactamase-producing Haemophilus influenzae. Buffered charcoal yeast extract (BCYE) agar plates had been incubated for less than 48 h and did not show growth of Legionella spp. Subsequently, the pellet and supernatant of the stored BAL fluid were tested with the NOW Legionella urinary antigen test, and both gave a positive result. To rule out cross-reactivity, suspensions of the S. pneumoniae and H. influenzae isolates of the patient were tested. Both suspensions tested negative. The following day, an indirect immunofluorescent antibody (IFA) test for L. pneumophila (MONOFLUO Legionella pneumophila IFA test kit; Bio-Rad, Munich, Germany) was performed with the pellet of the BAL fluid and small colonies growing at that time on the BCYE agar plates. Both preparations showed brightly fluorescent rods. The strain did not grow on BCYE in the absence of cysteine and was identified as L. pneumophila serogroup 1 by serogrouping techniques (Dryspot Legionella latex test; Oxoid, Hampshire, United Kingdom). Antibacterial therapy was switched to levofloxacin and cefotaxime. The patient was discharged from the hospital in good condition after 14 days.

A preliminary evaluation of specificity of this application of the NOW Legionella urinary antigen test was conducted with BAL fluids from five pneumonia patients. L. pneumophila serogroup 1 antigen was not detected in pellets or supernatants of centrifuged BAL fluids, while culture yielded no Legionella spp. Conventional microbiological methods did reveal other microorganisms: e.g., H. influenzae, Serratia marcescens, Pseudomonas aeruginosa, Corynebacterium spp., coagulase-negative staphylococci, Candida spp., and Pneumocystis carinii.

The NOW Legionella urinary antigen test detected L. pneumophila serogroup 1 antigen in BAL fluid from an HIV-infected patient with culture-proven Legionnaires’ disease. Application of the test to specimens other than urine might prove useful for rapid diagnosis of Legionnaires’ disease. This may be especially true for anuric patients. End-stage renal disease is identified as risk factor for legionellosis, and acute renal failure is a known complication of Legionnaires’ disease (1–3). The test might also prove useful for patients with extrapulmonary manifestations of L. pneumophila serogroup 1 infection—e.g., pericarditis, which often presents without overt pneumonia (4). While our observation seems promising, additional clinical observations are needed to evaluate the sensitivity and specificity of the test with specimens other than urine.

REFERENCES


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