Acute Human Immunodeficiency Virus Infection with Severe Respiratory and Renal Failure

Symptomatic primary HIV infection has been described as a self-limited ‘‘flu-like’’ illness characterized by fever, skin rash, lymphadenopathy, pharyngitis, malaise, and myalgias [1]. As physicians’ awareness of acute HIV infection has increased, more atypical cases have been recognized [2, 3]. We report an unusually severe case of acute HIV type 1 (HIV-1) infection presenting as both pulmonary disease requiring mechanical ventilation and acute renal failure requiring hemodialysis.

A previously healthy 31-year-old man with a history of cocaine smoking presented with fever, nonproductive cough, dyspnea, and weight loss for 2 weeks and abdominal pain, mild diarrhea, and jaundice for 4 days. Physical examination showed a thin man in severe respiratory distress. He had icteric sclerae, gingival bleeding, bilateral cervical adenopathy, hepatomegaly, and rales over the right lung field. Laboratory studies disclosed the following: WBC count, 8,400/mm³ with 22% band forms, 65% segmented forms, 9% lymphocytes, and 4% monocytes; hematocrit, 36.6%; platelet count, 37,000/mm³; blood urea nitrogen level, 178 mg/dL; and creatinine level, 13.8 mg/dL.

Urinalysis showed 3+ protein, 3+ hemoglobin, no casts, numerous WBCs, and six to 10 RBCs per high-power field; culture of urine was negative. The total bilirubin level was 5.1 mg/dL (normal value, <1.3 mg/dL); alkaline phosphate level, 137 U/L (normal value, <126 U/L); aspartate aminotransferase level, 259 U/L (normal value, <59 U/L); alanine aminotransferase level, 85 U/L (normal value, <72 U/L); and creatine kinase, 1,371 U/L (normal value, <170 U/L). Arterial blood gas determination while the patient was receiving support with mechanical ventilation with a 50% fraction of inspired oxygen revealed the following: pH, 7.42; PaO₂, 55 mm Hg; and PaCO₂, 33 mm Hg. A chest roentgenogram obtained at admission showed bilateral patchy alveolar densities and small bilateral pleural effusions. CT of the chest and abdomen confirmed ground glass infiltrates in both lungs and bilateral hilar, subcarinal, and paratracheal lymphadenopathies.

Serologies of acute- and convalescent-phase serum samples were negative for Legionella pneumophila, Mycoplasma pneumoniae, Chlamydia psittaci, cytomegalovirus, and Ehrlichia chaffeensis. Serologies were also negative for Leptospira, Coxiella burnetii, Epstein-Barr virus, and hepatitis A, B, and C viruses. The serum rapid plasma reagin titer was 1:32, and the fluorescent treponemal antibody absorption test was positive. All blood cultures were negative. Sputum culture yielded β-lactamase-negative Haemophilus influenzae.

On hospital day 12, bronchoscopy with bronchoalveolar lavage (BAL) showed inflammatory cells, with 28% polymorphonuclear leukocytes, 52% histiocytes, and 20% lymphocytes. Cultures of BAL fluid were negative for acid-fast bacilli, fungi, and bacteria. Silver staining and tissue histopathology of BAL fluid and transbronchial biopsy specimens were negative for Pneumocystis carinii and viral inclusions. Pathological examination of a lung tissue specimen revealed lymphocytic interstitial pneumonitis.

An initial ELISA for HIV-1 was negative. On hospital day 7, a second ELISA for HIV was positive, and western blotting was indeterminate (one band). On hospital day 13, western blotting was still indeterminate (two bands). The HIV-1 p24 antigen levels on hospital days 1, 7, and 13 were 4,285 pg/mL, 3,170 pg/mL, and 104 pg/mL, respectively. A quantitative assay for RNA from HIV was positive on hospital days 2 and 20: 297,521 copies/mL and 718,636 copies/mL, respectively. On hospital day 2, the CD4 cell count was 95/μL, the CD8 cell count was 107/μL, and the CD4/CD8 cell ratio was 0.9.

The patient’s daily temperature was between 38°C and 39°C for 15 days despite treatment with erythromycin, rifampin, and doxycycline. He required support with mechanical ventilation for 14 days. Hemodialysis was necessary for treatment of nonoliguric renal failure for the first 4 days of hospitalization. Spontaneous normalization of the blood urea nitrogen and creatinine levels occurred over 3 weeks. Thrombocytopenia resolved, and results of liver function tests returned to normal by 2 to 3 weeks. Therapy with zidovudine, lamivudine, and indinavir was started; within 1 month after discharge, he was totally asymptomatic.

Acute retroviral infection has been described as a disease resembling infectious mononucleosis. The syndrome occurs in about 40% to 70% of newly HIV-infected people. It is self-limited, with a usual duration of 2 to 30 days [1]. Typical manifestations are fever, skin rash, headache, malaise, myalgias, lymphadenopathy, pharyngitis, oral or genital ulcers, weight loss, anemia, thrombocytopenia, and lymphopenia with atypical lymphocytes. Less common manifestations include gastrointestinal and neurological symptoms, pneumonitis, hepatitis, and occasionally renal injury [1–3].

Opportunistic lung infections (probably related to transient severe immunosuppression [4]), self-limited pneumonitis with mild to moderate hypoxia [2, 5], and CD8 lymphocytic alveolitis [6] all have been described in patients with acute retroviral infection. Severe pneumonitis requiring support with mechanical ventilation has been reported only twice [7, 8]. It has been suggested that HIV per se could be the cause of the respiratory disease [5–7]. Our patient’s lung biopsy showed lymphocytic interstitial pneumonitis with no evidence of opportunistic pathogens.

Renal disease in chronically HIV-infected patients has been well described [9]. Acute HIV infection as a cause of renal failure is extremely rare, and the need for dialysis has not been reported. Hematuria and pyuria of unknown significance have been docu-
Azithromycin Therapy for Scrub Typhus During Pregnancy

Scrub typhus (tsutsugamushi disease) is a febrile disease that is endemic in Asian-Pacific areas. Therapy with tetracycline (doxycycline) or chloramphenicol is currently recommended for the treatment of scrub typhus [1]. Ciprofloxacin therapy has been used experimentally, but its efficacy has not yet been determined [2]. However, chloramphenicol and tetracycline, which are class D drugs according to the U.S. Food and Drug Administration (FDA) Fetal Risk Summary, should not be used to treat pregnant women [3]. The use of tetracycline or ciprofloxacin is contraindicated in children. Recently, azithromycin, a new macrolide antibiotic, has been proven to be more effective than doxycycline in an in vitro assay system against doxycycline-susceptible and -resistant strains of Orientia tsutsugamushi [4]. Moreover, there is no evidence that azithromycin causes harm to the developing fetus or to children [3]. On the basis of current in vivo testing that confirms the effectiveness of azithromycin, it may be the drug of choice for the treatment of scrub typhus in pregnant women and children. We describe two pregnant patients with scrub typhus who were treated successfully with azithromycin without complications or relapse.

A 27-year-old pregnant woman, 19 weeks' gestation, came to our hospital for evaluation of a 7-day history of high fever and headaches. Physical examination at admission to the hospital revealed a temperature of 39.4°C, a heart rate of 132/minute, and a diffuse, macular skin rash involving the entire body. An eschar was found on the right posterior thigh. Laboratory evaluation revealed the following values: peripheral WBCs, 6,760/μl; hemocrit, 26.5%; platelets, 143,000/mm³; aspartate aminotransferase (AST), 97 IU/L (normal, 8–40 IU/L); alanine aminotransferase (ALT), 87 IU/L (normal, 5–30 IU/L). A serology for O. tsutsugamushi (by use of passive hemagglutination test) was negative at that time. On the basis of a clinical diagnosis of scrub typhus, therapy with azithromycin was initiated. On the first day 1.0 g was given, and 500 mg was given on the second and the third days. The temperature decreased on the second day of drug administration, and the macular skin rash involving the entire body. On the second day of drug administration, the patient’s condition improved. A serology for O. tsutsugamushi performed the second week after discharge revealed positive conversion (titer, 1:320; normal, <1:80).

A 27-year-old pregnant woman, 24 weeks’ gestation, was admitted to the hospital because of a 6-day history of high-grade fever and skin rash. Physical examination at admission to the hospital revealed a temperature of 39.5°C; and eschar on the right breast; and a diffuse, macular skin rash. Physical examination at admission revealed a body temperature of 39.4°C; and headache. Physical examination at admission revealed a body temperature of 39.4°C; and eschar on the right breast; and a diffuse, macular skin rash involving the entire body. Laboratory evaluation revealed the following values: peripheral WBCs, 6,760/μl; hemocrit, 26.5%; platelets, 143,000/mm³; aspartate aminotransferase (AST), 97 IU/L (normal, 8–40 IU/L); alanine aminotransferase (ALT), 87 IU/L (normal, 5–30 IU/L). A serology for O. tsutsugamushi (by use of passive hemagglutination test) was negative at that time. On the basis of a clinical diagnosis of scrub typhus, therapy with azithromycin was initiated. On the first day 1.0 g was given, and 500 mg was given on the second and the third days. The temperature decreased on the second day of drug administration, and the macular skin rash involving the entire body. On the second day of drug administration, the patient’s condition improved. A serology for O. tsutsugamushi performed the second week after discharge revealed positive conversion (titer, 1:320; normal, <1:80).

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