The use of levofloxacin in a patient with leptospirosis

Davut Ozdemir[1], Irfan Sencan[2], Tevfik Yavuz[3], Oguz Karabay[4], Ertugrul Guclu[1]

Department of Clinical Microbiology and Infectious Disease, Duzce University Medical School, Duzce, Turkey[1]
Department of Clinical Microbiology and Infectious Diseases, Diskapi Yildirim Beyazit Training and Research Hospital, Ankara, Turkey[2]
Department of Microbiology and Clinical Microbiology, Duzce University Medical School, Duzce, Turkey[3]
Department of Clinical Microbiology and Infectious Diseases, Abant Izzet Baysal University Izzet Baysal Medical School, Bolu, Turkey[4]

Dear editor,

Leptospirosis is a zoonosis of worldwide distribution affecting humans as well as some wild and domestic animals (1). Leptospirosis is endemic in Turkey. *L. interrogans* serovar Icterohaemorrhagiae, *L. kirschneri* serovar Butembo, *L. interrogans* serovar Grippotyphosa are prevalent pathogenic leptospiral sorovars in Turkey (2). Human leptospirosis may be asymptomatic or characterized by a mild anicteric disease. However, 5 to 10% of patients develop severe icteric illness with a case fatality rate of up to 10% (1). The majority of leptospirosis cases are diagnosed by serology. The reference standard assay is the microscopic agglutination test (MAT). Locally isolated strains, which often increase the sensitivity of the test compared with reference strains, can also be included in the battery of antigens. However, the range of serovars should not be limited to local strains in case the infection is due to a rare serovar or perhaps to a strain that is currently unknown in the region concerned. For this reason too, a saprophytic strain is included (*L. biflexa* strain Patoc I) which cross-reacts with human antibodies generated by a number of pathogenic serovars (3, 4). Ideally, as with other serological tests, two consecutive serum samples should be examined to look for seroconversion or a four-fold or greater rise in titre. Often only a single serum sample is submitted, possibly from the early phase of the disease. The significance of titres in single serum specimens is a matter of considerable debate, and in different areas, different titres (cut-off points) may be applied. Some consider a titre of 1:100 positive, whilst others accept 1:200, 1:400 or 1:800 as diagnostic of current or recent leptospirosis. However, suggestive evidence for recent or current infection includes a single titer of at least 1:100 obtained after the onset of symptoms (3, 4). The antibiotics used primarily for the treatment of leptospirosis are penicillins or tetracyclines; however, the effectiveness of such treatment is controversial, especially of penicillins. Other antimicrobial agents including some quinolones have been shown to be active against leptospiras in vitro (3, 5, 6, 7). However, only ciprofloxacin and pefloxacin have been used to treat some infections of humans (8, 9). To our knowledge, there is no data regarding the use of levofloxacin in treating leptospirosis. In this paper, we report on a patient for whom levofloxacin treatment was started for presumed salmonellosis and cellulitis empirically, however he was later diagnosed as leptospirosis, cellulitis and inguinal abscess.

A 35-year- old man was admitted to our hospital with a 1-day history of fever, chills, rigors, headache, lethargy, constipation, left pretibial rubor, nausea and vomiting. His hobby was fishing. On physical examinations, blood pressure was 120/80 mm Hg, pulse rate was 80 beats per min, and body temperature was 38.1 ^{o}C. He had abdominal petechial rash and left pretibial 5X5 cm rubor. Neurological examination and the examination of cerebro-spinal fluid were found to be normal. Abnormal laboratory findings were a leucocyte count of 11 800/mm^3, with 82.6% neutrophils, a C-reactive protein level of 36.9 mg/l, an alanine amino transferase level of 50 U/l, a Gamma-glutamyltranspeptidase level of 57 U/l. After blood cultures were drawn, intravenous levofloxacin infusion (500 mg once a day) was started for presumed salmonellosis and cellulitis empirically. Fever, chills, rigors, headache, lethargy, constipation, nausea and vomiting disappeared in three days and left pretibial rubor was regreded. Ultrasonography examinations found a 33x3x12 mm diameter image like abscess in the left inguinal region and a gram-positive cocci was yielded from the purulent secretion. The organism was determined to be

Staphylococcus aureus (*S. aureus*) by the API STAPH (BioMérieux, Marcy lEtoile, France) and antimicrobial susceptibility testing was performed with a disk diffusion test according to The Clinical and Laboratory Standards Institute (10). The isolate was susceptible to methicillin, gentamic in, ofloxacin, ciprofloxacin, vancomycin and teicoplanin. Following these findings the treatment was left unchanged. On the 7^{th} day of the treatment leptospira microagglutination titre to *Leptospira biflexa* serovar Patoc was positive at 1:200 titer. He was diagnosed with leptospirosis, cellulitis of *S. aureus* and inguinal abscess. After 14 days of treatment, the abscess became small and laboratory findings were normalized. MAT was found positive at 1:100 titer after 7 days of the last dose of the treatment. In conclusion, we conclude that levofloxacin can be used for the treatment of leptospirosis. However, more experiences are needed to confirm these findings.

Corresponding author: *Davut Ozdemir, MD*
Address: *Department of Clinical Microbiology and Infectious Diseases, Duzce University Medical School, Duzce, 81620, Turkey.*
Phone: *(090)3805414107/2462.*
Fax: *(090) 3805414105.*
E- mail*:davutozdemir@hotmail.com*

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