
Safety and Efficacy of Cefprozil as Part of a Parenteral-Oral Antibiotic Regimen for the Treatment of Suppurative Skeletal Infections in Children

For more than two decades, combined parenteral-oral antimicrobial regimens have proved safe and effective for the treatment of osteomyelitis and suppurative arthritis in children [1–6]. We conducted this study to evaluate the safety and efficacy of oral cefprozil as follow-up therapy after initial treatment with parenteral antibiotics for suppurative osteoarticular infections in children.

Twenty-five children younger than 13 years of age with a clinical diagnosis of osteomyelitis or suppurative arthritis who were admitted to Children’s Medical Center or Parkland Memorial Hospital in Dallas were enrolled in the study between May 1993 and September 1994. Written informed consent for participation in the study was obtained in all cases. Laboratory studies performed at the time of admission included the following: WBC count with differential, erythrocyte sedimentation rate, C-reactive protein level, and blood culture. Orthopedic specialists were consulted for needle aspiration or surgical drainage of the affected site and for follow-up procedure(s), as clinically indicated.

Intravenous antibiotic therapy was started at the time of diagnosis and continued until there was evidence of clinical improvement and a concomitant decrease over time in the indices of inflammation, at which time oral therapy with cefprozil (90 mg/kg given daily in three divided doses) was initiated.

Serum inhibitory and serum bactericidal titers of antibodies to the patient’s pathogen were determined by a standard microtiter method after the third dose of cefprozil was administered [7, 8]. The dosage of cefprozil was adjusted to achieve a serum bactericidal titer of ≥1:8.

A pathogen was isolated from 12 patients. Staphylococcus aureus was the most common organism isolated, and no gram-negative pathogens were isolated. All isolates were susceptible to cefprozil (MIC, ≤1.0 μg/mL). Five patients (42%) each had osteomyelitis and suppurative arthritis and two (17%) had both. With the exception of one patient, serum bactericidal titers were consistently ≥1:8. That one patient required an increased dosage of cefprozil (125 mg/kg given daily in three divided doses) to attain a serum bactericidal titer of ≥1:8, which was measured at steady state. Patients with osteomyelitis received therapy with cefprozil for a median of 24 days (range, 19–74 days), and patients with suppurative arthritis received this drug for a median of 20 days (range, 9–37 days). Cefprozil was well tolerated, and no serious side effects occurred. Two children were considered to have chronic osteomyelitis because of undrained foci of infection when treatment with cefprozil was initiated. In these two cases, cefprozil therapy was given for 10 weeks (the limit was defined by the study protocol); the clinical and inflammatory indices improved while the patients were receiving therapy. The 10 patients with acute disease were observed for 6 months or longer and, as of this writing, are doing well.

In conclusion, cefprozil is a suitable alternative for the treatment of musculoskeletal infections in children who have received an initial course of iv antibiotic therapy. Excellent tolerance and thrice-daily dosing help to assure compliance with cefprozil therapy.

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References