Communications

Treatment of Urinary Tract Infection With Cephalexin

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Although cephalexin is not generally regarded as the drug of first choice for urinary tract infections, several investigators[1-4] have used it successfully for the treatment of these conditions, giving 1 g daily in divided doses. Because of the efficacy of the drug in these studies, the low incidence of adverse reactions, and the high urine levels achieved with the 500 mg oral dose, an evaluation of cephalexin comparing the dose schedules of 500 mg twice daily and 250 mg four times daily in a double-blind study was undertaken.

Methods

Male and female patients over the age of 15 years presenting with symptomatic urinary tract infections were enrolled if they were otherwise in reasonably good health. Pregnant patients were excluded, as were those with known renal or hepatic impairment, those with a concomitant infection, and those who had received successful antibacterial therapy within the preceding four days.

Patients were admitted to the study after giving their consent (parental consent was obtained for patients under 18 years of age) and after urine cultures had shown the presence of 10^5 colony-forming units per milliliter of an organism shown to be susceptible to cephalexin.

A second urine culture was obtained between the 2nd and 4th days of treatment and another one 5 to 9 days after treatment was completed. Whenever possible, a follow-up culture was obtained four to six weeks after the end of treatment.

All patients were treated with cephalexin, 1 g daily for at least seven days. The patients were randomly allocated by a computer-generated random number table to a treatment schedule of 250 mg four times a day or 500 mg twice a day. To maintain the double-blind technique, all patients received capsules four times a day: those allocated to the schedule of 500 mg of cephalexin taken twice a day also received alternate doses of placebo capsules of identical appearance. No attempt was made to assess patient compliance with the treatment schedule.

Any adverse reactions that were spontaneously volunteered or elicited in response to nonspecific questions were recorded, and an attempt was made to establish whether they were drug related.

Results

One hundred eighty-four patients were admitted to the study. There were 32 male patients and 152

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female patients. One hundred seventy-eight patients were diagnosed as having "cystitis" or "urinary tract infection," and six had asymptomatic bacteriuria. Escherichia coli was the most common pathogen (113 patients) followed by Proteus mirabilis (27 patients). Single pathogens were isolated from 166 patients, 82 of whom received the twice-a-day schedule, and 84 of whom received the four-times-a-day schedule. Multiple pathogens were isolated from six patients on the twice-a-day schedule and three patients on the four-times-a-day schedule. There were no significant differences in the patient populations from the four centers or for the two treatment schedules; thus, it was reasonable to combine the results from the four centers.

Nine of the 184 patients failed to meet the criteria for complete evaluation of efficacy: In four patients, one or more urine cultures were not obtained at the specified time. Three patients were infected with organisms resistant to cephalexin or inadequately identified (including one patient with asymptomatic bacteriuria), and two patients required additional therapy that made them ineligible for the study. Of the remaining 175 patients, 88 received 500 mg cephalexin twice a day and 87 received 250 mg cephalexin four times a day.

A satisfactory symptomatic response defined as disappearance or improvement of the signs and symptoms of the infection with no recurrence five to nine days post-therapy was seen in 81 (94 percent) of the 88 evaluable patients on the twice-a-day schedule and 78 (93 percent) of the 87 patients on the four-times-a-day schedule. Five patients were asymptomatic on admission to the study and so were unable to provide symptomatic evaluation. Eleven patients, five on the twice-a-day schedule, reported a recurrence of symptoms in the post-therapy period.

Bacteriologic cure, defined as elimination of the original pathogen from all the follow-up cultures, was achieved in 82 (93 percent) of the 88 patients on the twice-a-day schedule and 79 (91 percent) of the 87 patients on the four-times-a-day schedule. The six patients who received the twice-a-day schedule and in whom the organisms were not eradicated had uncomplicated cystitis; the infecting organisms were E coli (3), P mirabilis (2), and Proteus sp (1). Six patients who received the

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four-times-a-day schedule and in whom the organisms were not eliminated had uncomplicated cystitis, and all were infected with E coli. Two other patients on the four-times-a-day schedule had complicated cystitis and were infected with P mirabilis.

Follow-up urine cultures, taken four to six weeks after therapy ended, were obtained from 68 patients. Thirty-one of 32 patients who had received the twice-a-day schedule had sterile urine; one patient had become reinfected with a new pathogen. In the group that had received the four-times-a-day schedule, 35 of 36 patients had sterile urine, and one patient had a pathogen present at less than 10^5 colonies per milliliter.

Adverse reactions were reported by seven (8 percent) patients who received the twice-a-day schedule. Four had vaginitis, one had genital moniliasis, one had a rash, and one complained of nausea. In the group that received the four-times-a-day schedule, one patient had genital moniliasis, and one had diarrhea. None of the patients stopped taking the cephalexin because of the adverse reaction.

Based on the results of this study, it can be concluded that cephalexin, 1 g daily, is an effective treatment for urinary tract infections caused by the common uropathogens, and that the drug is equally effective given twice a day or four times a day.

References

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