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Ciprofloxacin desensitization in a patient with cystic fibrosis

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Ciprofloxacin, a fluorinated quinolone, is a wide-spectrum antibiotic often used to treat patients with cystic fibrosis and known sputum isolates of *Pseudomonas* species. The advantage of ciprofloxacin is that it can be given orally, unlike other anti-*Pseudomonas* antibiotics generally used for the treatment of pulmonary exacerbations in these patients. Although it is generally well-tolerated,¹ anaphylactoid reactions with ciprofloxacin have been reported.²⁻⁴ A MEDLINE search revealed no reports of desensitization to ciprofloxacin. A successful case of desensitization to ciprofloxacin in a patient with cystic fibrosis is described.

CASE REPORT

The patient is a 15-year-old girl with cystic fibrosis who received ciprofloxacin for treatment of increased sputum production, fatigue, cough, and decline in pulmonary function. She had previously received a course of ciprofloxacin without complication. After the second day of the newly prescribed dose of 500 mg twice daily, urticaria developed over the scalp, face, and arms. There was no complaint of respiratory distress, swelling, or dizziness. Her other medications at the time of the reaction included nebulized albuterol and tobramycin, pancreatic enzymes, and multivitamins, all administered without any recent change in dose or formulation. Because the patient preferred treatment with an oral

TABLE I. Oral desensitization protocol for ciprofloxacin

Dose*	Concentration (mg/ml)	Amount (ml)	Dose (mg)	Cumulative dose (mg)
1	0.01	5.0	0.05	0.05
2	0.1	1.0	0.1	0.15
3	0.1	2.0	0.2	0.35
4	0.1	4.0	0.4	0.75
5	0.1	8.0	0.8	1.55
6	1.0	1.6	1.6	3.15
7	1.0	3.2	3.2	6.35
8	1.0	6.4	6.4	12.75
9	1.0	12.8	12.8	25.55
10	10.0	2.5	25.0	50.55
11	10.0	5.0	50.0	100.55
12	10.0	10.0	100.0	200.55
13	N/A	250 mg tablet		450.55

N/A, Not applicable.

*Doses were administered every 15 minutes.

antibiotic if possible, oral desensitization with ciprofloxacin was attempted.

Oral solutions for desensitization were prepared by initially dissolving a pulverized 250 mg tablet of ciprofloxacin in water to make a 10 mg/ml solution. Subsequent dilutions of 1.0 mg/ml, 0.1 mg/ml, and 0.01 mg/ml were made. Each solution was agitated just before use. Desensitization was performed in the morning with the protocol presented in Table I. Doses were administered every 15 minutes. Other than a complaint of bitter taste, no complications were noted. The patient was instructed to take the next oral dose of 500 mg that evening. The patient subsequently completed a

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6-week course of ciprofloxacin 500 mg twice daily without incident.

DISCUSSION

The patient described in this case had an urticarial reaction temporally associated with administration of ciprofloxacin but with no other obvious etiologic agents. The symptoms described with anaphylactoid reactions to ciprofloxacin have been more severe, often including severe angioedema, hypotension, and syncope.^{2,3} Flu-like symptoms of fever, nausea, vomiting, diarrhea, and myalgias have also been reported, particularly in patients with acquired immunodeficiency syndrome.⁴ These reactions have been labeled anaphylactoid because attempts to identify an IgE-based mechanism have been unsuccessful,⁵ and the majority of reactions have occurred with the first exposure to the drug.²

The use of an oral drug decreases costs and is less restrictive on patient lifestyle. Successful desensitization with ciprofloxacin can be beneficial to patients when the only option may be an intravenously administered antibiotic, particularly when anti-*Pseudomonas* coverage is necessary. However, because of concern about drug resistance after prolonged use of ciprofloxacin, continued desensi-

tization once the treatment course is complete may not be ideal.

Because it is not known whether the apparent loss of sensitivity is temporary or permanent, it would be prudent to re-desensitize for each required course of ciprofloxacin. Finally, although this particular patient tolerated desensitization to ciprofloxacin, caution should be taken when applying this protocol to patients who have had more severe reactions. Modifications to the dose and rapidity of administration may be necessary.

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Hemodialysis-induced rash: A unique case of cholinergic urticaria

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CASE REPORT

A 19-year-old man undergoing long-term hemodialysis was first seen with recurrent episodes of generalized punctate pruritic urticarial rash. Rashes appeared about

Abbreviation used

CU: Cholinergic urticaria

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1 hour after the initiation of a dialysis session and faded spontaneously within 30 minutes after its termination. During these episodes there were no changes in blood pressure or pulse nor any signs of respiratory distress. At that time no medications other than captopril, which was given to treat hypertension, were used regularly during or between dialysis sessions. Antihypertensive therapy was first switched to verapamil and then to nifedipine.