

Zidovudine-related erythroderma and successful desensitization: A case report

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Zidovudine is a dideoxynucleoside analog of thymidine, which acts as a virostatic drug against the human immunodeficiency virus (HIV) by interfering with viral reverse transcriptase. Although zidovudine is generally well tolerated, a number of adverse reactions have been described; the most common are anemia and neutropenia. However, only a few zidovudine allergy cases have been published.¹⁻⁴ We present a new case of zidovudine sensitization successfully treated by means of a shorter protocol than that previously described in association with low-dose corticosteroids.

CASE REPORT

A 37-year-old man, a former intravenous drug user, who had acquired immunodeficiency syndrome, toxoplasmic encephalitis, and chronic liver disease began receiving zidovudine therapy (250 mg every 12 hours by mouth) because of his low CD4 level ($< 500/\text{mm}^3$). After 5 days of therapy, he had a fever, malaise, and a maculopapular eruption, sparing mucosae. He was not taking any other drug. Zidovudine was withdrawn, and the patient began receiving methylprednisolone treatment (120 mg/day by mouth). The clinical picture completely improved after 15 days. A short zidovudine desensitization protocol was started, once the lesions had disappeared. Doses were prepared with Retrovir solution (Gayoso-Wellcome, The Wellcome Foundation, London, U.K.) in a concentration of 50 mg/5 ml, as shown in Table I, and were given by mouth. The desensitization protocol lasted 10 days, and a therapeutic dose of zidovudine (500 mg/day) was finally achieved. Maintenance therapy with methylprednisolone (24 mg/day) and antihistamines was also administered.

Tolerance was satisfactory, although the patient had a transient rash and itching over the elbows and knees on

Abbreviation used

HIV: Human immunodeficiency virus

days 5 and 6 after beginning the protocol, which disappeared after antihistamine doses were increased. Once therapeutic doses of zidovudine were achieved, the methylprednisolone was progressively decreased until complete withdrawal without relapse was possible. After this, the patient tolerated full doses of zidovudine uneventfully and still tolerates such doses 8 months later.

DISCUSSION

Drug-induced maculopapular rash is the most common allergic manifestation of the patient with HIV.² To date, many sulfonamide-related allergy cases have been reported, but only a few have been related to zidovudine. McKinley et al.¹ report a patient with an urticarial reaction on the face, arms, and abdomen. Carr et al.² describe two patients, the first showing a maculopapular eruption and fever and the second showing multiple nonpruritic, blistering, erythematous lesions. Jacobson et al.³ describe a patient who had a fever without a rash,³ and finally, Lee et al.⁴ report a patient with a fever and leukocytoclastic vasculitis as determined by biopsy.

We describe an additional case of an infrequent drug allergy and the successful application of a desensitization protocol. The diagnosis was supported by clinical data and reinforced by the transient reappearance of the skin lesions during desensitization, which confirms their non-dose relationship to zidovudine. To date, no reliable in vitro or in vivo tests are available. Moreover, every case previously reported was only supported by clinical data.¹⁻⁴

The pathogenesis of these reactions remains unknown. Because of their similarity to sulfonamide-related reactions it is possible, but not yet proven, that a hapten-mediated immunologic mech-

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anism with an IgE, IgG, or IgM response could be involved.⁵ An alternative explanation might be the production of metabolites because of damaged enzyme pathways related to HIV infection, releasing mediators.⁵

Our desensitization protocol is shorter than that previously described by Carr et al.² They used a once-daily zidovudine single dose in concentrations of 80 mg/ml, beginning with 0.008 mg and reaching a full therapeutic dose after 37 days. They did not include a corticosteroid or antihistamine as a part of the protocol, but a corticosteroid was given as a result of sepsis-related hypotension between days 11 and 18.

Our protocol introduces a method that saves time without increasing risks because complete drug tolerance was achieved in 10 days with no adverse effects. We included a corticosteroid in the protocol because therapy was started by the time the reaction appeared. The lesions did not reappear after corticosteroid withdrawal. These data suggest that desensitization indeed occurred.

There is no agreement in the literature regarding use of a corticosteroid, either as pretreatment or during desensitization. In addition, there is no evidence showing a better outcome. However, we cannot rule out an influence on desensitization, because corticosteroids and antihistamines interfere with inflammatory response mechanisms produced after drug sensitization.⁵

In summary, because zidovudine is used more and more frequently in clinical practice, it is necessary to consider the possibility of allergic reac-

TABLE I. Zidovudine desensitization protocol

Day	Dose (mg)	Dose (ml)
1	10	1
2	20	2
3	50	5
4	80	8
5	100	10
6	120	12
7	150	15
8	200	20
9	250	25
10	500	50

Concentration: 50 mg/5 ml.

tions. In this article we present a new case of zidovudine allergy and a shorter desensitization protocol than that previously reported.

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