Icodextrin Cutaneous Hypersensitivity

Report of 3 Psoriasiform Cases

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Background: Icodextrin is proposed as a new osmotic agent for use in peritoneal dialysis. Because of its recent use, adverse reactions are not well known. Cutaneous adverse effects have been described. We report 3 cases of cutaneous hypersensitivity to icodextrin and discuss the pathogenesis of this reaction.

Observations: The cutaneous adverse reaction was psoriasiform in our 3 cases. The eruption was generalized with acute generalized exanthematous pustulosis in 1 case, and limited to the palms and soles in 1 case. It occurred 10 to 15 days after icodextrin therapy was initiated. In patient 1, the results of a rechallenge with icodextrin were positive. Icodextrin therapy was discontinued in all patients.

Conclusions: Some cases of cutaneous reactions to icodextrin have been reported in the literature, but they are rare. As in our cases, most eruptions are psoriasiform, limited to the palms and soles, or extensive. Although the etiology is unclear, a hypersensitivity reaction, with the formation of immunocomplexes, is probable.

Arch Dermatol. 2001;137:309-310

Icodextrin is a maltodextrin glucose polymer (Extraneal; Baxter HealthCare, Deerfield, Ill) that has been available for use in peritoneal dialysis in Europe since 1994. It offers many advantages compared with glucose solution and allows better control in cases of diabetes. Since 1996, some cases of cutaneous reactions to icodextrin have been published. We report 3 cases of psoriasiform eruption due to icodextrin use.

REPORT OF CASES

CASE 1

A 50-year-old woman with diabetes developed renal failure that led to peritoneal dialysis in 1996. Icodextrin was introduced to her treatment regimen on February 15, 1998, and 11 days later, a widespread maculopapular rash was noted that became psoriasiform, with onycholysis (Figure 1) and involvement of the palms and soles. Laboratory tests revealed leukocytosis (neutrophils, 8.1 x 10^9/L; eosinophils, 0.64 x 10^9/L). The symptoms improved as soon as the icodextrin treatment was discontinued, and there was complete healing in 1 week. Rechallenge with icodextrin showed a recurrent rash in 48 hours, requiring its definitive withdrawal.

CASE 2

A 45-year-old woman had systemic lupus erythematosus with renal involvement, leading to peritoneal dialysis in 1997. Icodextrin was introduced to her treatment regimen on February 17, 1999. On March 2, she developed a generalized pruritic erythematous eruption with milky nonfollicular pustules (Figure 2), oral and genital mucous involvement, and fever. Laboratory tests revealed leukocytosis (neutrophils, 13.0 x 10^9/L). Bacteriological samples were negative for organisms. A skin biopsy specimen showed superficial and intraepidermal spongiform pustules without vasculitis, compatible with a diagnosis of acute generalized exanthematous pustulosis. The evolution was desquamative, with onycholysis, and the rash disappeared within 15 days after the icodextrin treatment was discontinued. Icodextrin was not reintroduced to the regimen, and the results of epicutaneous tests with icodextrin were negative.

CASE 3

A 45-year-old man began peritoneal dialysis in 1996 for end-stage renal failure.
Icodextrin was introduced to his treatment regimen on April 17, 1999, and 12 days later, he developed exfoliative dermatitis that affected his palms, with onycholysis and pachyonych. The icodextrin treatment was discontinued, but the dermatitis had spread to the patient’s soles. He slowly recovered, with desquamation. Icodextrin was not reintroduced. The results of epicutaneous and intradermal tests with icodextrin were negative.

In our 3 cases, the imputability of icodextrin is very likely. The chronology of events, with the onset of symptoms in 10 to 15 days, the rapid healing after discontinuation of the icodextrin treatment, and the rapid recurrence after rechallenge in 1 case, indicates that icodextrin is responsible. The eruption was always psoriasiform and either limited to the palms and soles (case 3) or extensive, with erythroderma (case 1) and acute generalized exanthematous pustulosis (case 2). Seven previous published cases were also psoriasiform and self-limited, and 2 other cases of severe cutaneous hypersensitivity were reported. Of 102 patients who had been exposed to icodextrin, 3 presented with a generalized exfoliative eruption 1 to 4 days after the onset of icodextrin treatment, with complete healing 3 weeks after the treatment was discontinued.

Cutaneous reactions to icodextrin remain rare. Icodextrin is slowly absorbed via the lymphatic system, from the peritoneal cavity, and is rapidly hydrolyzed by amylase in maltose. In our 3 cases, it is likely that there was a hypersensitivity reaction to icodextrin, with the formation of immunocomplexes and skin localization, similar to reactions to dextran, a molecule that is closely related to icodextrin. However, reactions to dextran are very different in that there are anaphylactic manifestations. Biochemical mechanisms are suggested for drugs known to induce psoriasiform lesions. Such mechanisms may exist with icodextrin.

Accepted for publication September 12, 2000.

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