

BRIEF REPORT

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Low-Dose Cyclosporine A in the Treatment of Severe Atopic Dermatitis Complicated by Chronic Hepatitis C Virus Infection

Abstract: Atopic dermatitis (AD) is the most frequent chronic inflammatory skin disorder in children and is usually accompanied by genetic and environmental factors. Effective management and treatment of AD is challenging and often requires systemic immunosuppressive therapy when refractory to topical treatments. We report a rare association between chronic hepatitis C virus (HCV) and severe AD, management of which required systemic cyclosporine because of its favorable effects on inflammatory and viral-related clinical outcomes.

A 14-year-old boy presented for severe atopic dermatitis (AD) resistant to topical therapy. Medical history revealed perinatal transmission of human immunodeficiency virus (HIV) and hepatitis C virus (HCV) by his coinfecting mother, moderate obesity, and arterial hypertension. Laboratory results showed active type 1 HCV (baseline HCV-RNA viral load 18,300 kIU/mL; alanine aminotransferase (ALT) 110 IU/mL, >45 U/L). His Scoring of Atopic Dermatitis (SCORAD) score was 55 and his pruritus visual analogue scale (VAS) was 8.4, indicating severe AD.

After clearance from the Hepatology Unit, systemic cyclosporine A (CsA) 3 mg/kg/day was prescribed, given its safe use in individuals with HCV and psoriasis (1).

At the 12-week follow-up assessment, clinical improvement (Fig. 1) (SCORAD 50% response, pruritus VAS 6, alanine transaminase [ALT] <45 IU/mL, HCV viral load 206 kIU/mL) was observed (Fig. 2).

After 12 months, complete clearing of skin lesions was obtained and CsA was substituted with topical tacrolimus and topical emollients. Eight weeks later the patient had a relapse of pruritic AD lesions. Systemic CsA was restarted at the same dosage, this time on a pulsed 4-days/week regimen, along with

topical tacrolimus. Relief of pruritus and control of disease was achieved after 6 weeks, and the combined treatment was continued for 9 months. Proactive treatment with tacrolimus was further maintained until complete AD clinical remission. The patient underwent close follow-up for 1 year without recurrence of the disease.

DISCUSSION

CsA treatment was well tolerated and the patient did not have any clinical signs or symptoms of active hepatitis or liver insufficiency at any point during treatment or follow-up. Atopy, allergy, and eczema have been shown to be more prevalent in chronic HBV carriers, whereas chronic HCV infection is not frequently associated with Th2-driven inflammatory skin disorders such as AD (2).

Current treatment guidelines do not address the clinical management of AD in the setting of chronic viral hepatic infections. Moreover, present treatment regimens for chronic HCV infection, including recombinant interferon- α and ribavirin, as well as newer protease inhibitor-based regimens, are known to induce or worsen eczematous conditions (3). The use of high-dose systemic steroids, although beneficial for managing flares of AD, carries the risk of worsening concomitant chronic HCV infection. CsA is a promising therapeutic option for the treatment of moderate to severe AD with concomitant HCV infection. CsA blocks Th1 and Th17 lymphocyte activation and related cytokine expression, providing antiinflammatory and antipruritic effects. CsA also inhibits HCV replication by blocking the interaction between cyclophilin B and NS5A and NS5B viral proteins (4). This has also been established in individuals with HCV with genotype 1 and a high viral load (5).

In our patient, with a type 1 HCV genotype and high baseline viral load (>100 kIU/mL), along with clinical resolution of the AD lesions, we observed a relevant reduction (>2 log units) of HCV-RNA and ALT during the first phase of continuous treatment with low-dose CsA that was maintained with topical tacrolimus.

Our report supports the efficacy and safety of CsA in the treatment of severe pediatric AD in the setting of chronic active HCV infection.

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Figure 1. A 14-year old boy with severe atopic dermatitis and typical involvement of the (A) face and (C) right upper chest. Clinical improvement after 12 weeks of systemic low-dose cyclosporine treatment (B and D).

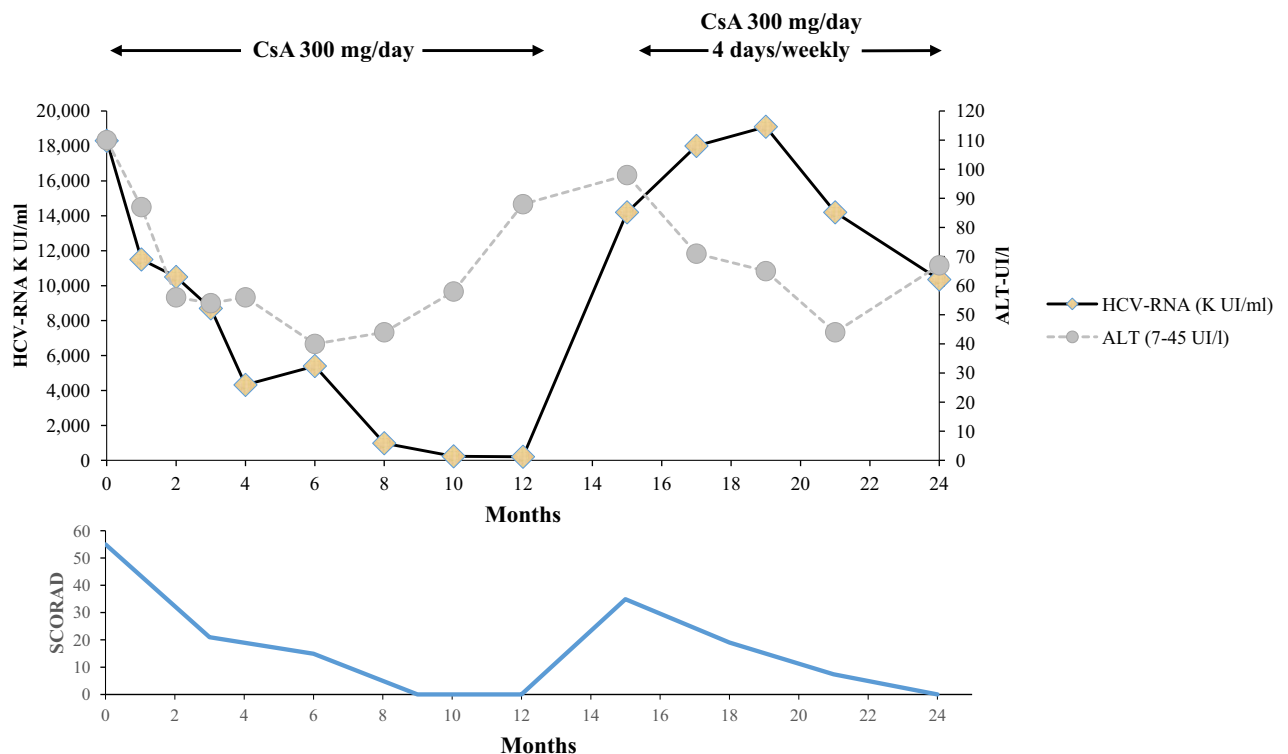


Figure 2. Longitudinal analysis of viral load (hepatitis C virus RNA levels, measured using a quantitative chain reaction assay (detection limit 50 IU/mL), and alanine aminotransferase (ALT) levels (>45 IU/mL) during the first course of continuous treatment (months 0–12) and the second course of pulsed treatment (months 15–24) with cyclosporine A (CsA). Treatment was discontinued after 12 months and reintroduced on month 15, after disease relapse.

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