

BRIEF ARTICLE

Successful Dupilumab Treatment of Atopic Dermatitis in a Liver Transplant Patient

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ABSTRACT

Atopic dermatitis (AD) in liver transplant (LT) recipients is well-documented, despite frequent use of immunosuppressants in these patients. In a liver transplant population, the prevalence of AD in children and adults is 27.6% and 10.3%, respectively.¹ However, there is dearth of literature regarding treatment of this population, and standard regimens are not well-defined.²⁻⁴ Here, we report a case of successful treatment of AD in an orthotopic LT patient with dupilumab.

INTRODUCTION

Atopic dermatitis (AD) in liver transplant (LT) recipients is well-documented, despite frequent use of immunosuppressants in these patients. In a liver transplant population, the prevalence of AD in children and adults is 27.6% and 10.3%, respectively.¹ However, there is little literature regarding treatment of this population, and standard regimens are not well-defined.²⁻⁴ Here, we report a case of successful treatment of AD in an orthotopic LT patient with dupilumab.

CASE REPORT

A 65-year-old Caucasian female presented with 2-year history of pruritic eruption involving the extremities. Medical history was significant for hypertension, gastroesophageal reflux, and orthotopic liver

transplantation 17 years prior for which she was receiving tacrolimus. There was no known personal, family, or donor history of atopy. Physical examination revealed pruritic, hyperkeratotic, scaly papules and lichenified plaques involving flexural surfaces of the bilateral upper and lower extremities. Biopsy revealed spongiotic dermatitis with eosinophils, consistent with atopic dermatitis versus allergic contact dermatitis versus other ID reaction. Patch testing was positive for methyldibromoglutaronitrile, benzalkonium chloride, and benzophenone.

Despite strict allergen avoidance and trials of varying-potency topical, intramuscular, and oral corticosteroids, the patient experienced continued pruritus and repeated flares. Phototherapy was relatively contraindicated secondary to patch-test proven concomitant photoallergic contact dermatitis. Furthermore, use of immunosuppressants such as methotrexate

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and cyclosporine were contraindicated in this patient, due to LT status with concern for additional hepatotoxic agents and her pre-existing hypertension, respectively.

After discussion with the patient's care team, the patient was started on a dupilumab regimen for persistent atopic dermatitis, with an initial loading dose of 600 milligrams followed by 300 milligrams every two weeks. Complete clearance of the rash, reduced flares, and ninety percent improvement in subjective pruritus were noted within one month and sustained throughout two additional years of treatment. The hepatic function panel and immunosuppressant levels were monitored monthly for three months, then every three months after initiation of dupilumab. Treatment was well-tolerated and no issues with hepatic function, immunosuppressant levels, or graft-related complications were reported.

DISCUSSION

Liver transplant portends a significantly higher risk of post-transplant allergy, autoimmunity, and immune mediated disorders than other solid-organ transplants (40% vs 1.3%).⁷ Exaggerated Th2-mediated inflammation secondary to suppression of the Th1 immune pathway by calcineurin inhibitors (i.e., tacrolimus) is one proposed mechanism. To this regard, inhibition of the Th2 response may offer a promising approach to the treatment of these patients. Dupilumab, a monoclonal antibody that decreases Th2-mediated inflammation by selectively blocking IL-4 and IL-13 signaling, has become an important component in the management of inflammatory and autoimmune diseases. Additionally, dupilumab enhances skin repair by increasing epidermal barrier proteins.⁵ Since FDA approval, the use of dupilumab in the

treatment of AD is well-established, with fewer contraindications and a more favorable side effect profile than traditional immunosuppressants.^{5,6} While there are cases reporting safe and efficacious treatment of AD with dupilumab in liver, heart, and kidney transplant patients, its use in this setting has not been studied in clinical trials.²⁻⁴

CONCLUSION

We present a case of dupilumab treatment of AD with superimposed allergic contact dermatitis in an orthotopic LT patient in the setting of posttransplant immunosuppressive therapy, demonstrating favorable clinical response and good side effect profile, maintained for two subsequent years. Prior to the dupilumab trial, this patient's condition was refractory to several treatments despite considerable immunosuppression with transplant medications. As such, dupilumab may be considered a viable treatment option among solid-organ transplant patients with AD unresponsive to topical treatments, phototherapy, and traditional immunosuppressants.

Conflict of Interest Disclosures: Dr. Correa is a consultant for Accutec Blades

Funding: None

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