

Case Report

Tofacitinib in a Recalcitrant Case of Alopecia Areata

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ABSTRACT

Alopecia areata (AA) is a non-cicatricial alopecia that is postulated to be a hair-specific autoimmune disease, with genetic factors playing a role in disease susceptibility and severity. The most common form of disease manifests as smooth, discrete, round patches of hair loss and can be referred to as alopecia areata focalis (AF). Tofacitinib is emerging as a promising therapy for severe AA. An increasing number of studies have demonstrated the efficacy of tofacitinib in treatment of alopecia areata. Herein we report a case of recalcitrant alopecia areata in a 14-year-old female treated successfully with oral tofacitinib based therapy.

Keywords: Tofacitinib, Alopecia areata, Recalcitrant

INTRODUCTION

Alopecia areata (AA) is an autoimmune chronic inflammatory disorder which targets hair follicles in the anagen phase, causing nonscarring alopecia. It usually manifests before 40 years of age with no predilection for sex or race.¹ It is mediated by T-lymphocytes against the hair follicular unit. Cytotoxic CD8+ NKG2D+ T-cells upregulate interleukin-15 in the hair follicles followed by production of interferon- γ , which targets the hair follicle for an immune attack. Janus kinase (JAK) inhibitors eliminate the interferon signaling and prevent disease development. Reversal of AA by JAK inhibitors have been successfully shown in the murine model.² Tofacitinib is a Janus kinase (JAK) 1/3 inhibitor that has been approved by the United States Food and Drug Administration for the treatment of rheumatoid arthritis, psoriatic arthritis, and ulcerative colitis.³ It has also demonstrated its activity in severe and recalcitrant alopecia areata. The present case describes the outcome of a young female with recalcitrant alopecia areata when treated with tofacitinib.

CASE REPORT

A 14-year-old female presented to the clinical facility with extensive patchy hair loss since last 3-4 yrs. She had received oral minipulse therapy, azathioprine, intra-lesional steroids and topical treatments including calcineurin inhibitors, steroids and immunomodulatory drugs, which failed to show results. Based on the symptoms and history, the patient was diagnosed with nonresponsive AA.

The patient's vitals and laboratory values including complete blood counts, liver function tests, thyroid function tests, lipid profile, serum electrolyte levels, and renal functions were reported normal. Her initial Severity of Alopecia Tool (SALT) score was around 68.4%.

The treatment plan included tofacitinib oral tablets 5 mg OD given for one month which was then increased to 5 mg BD for next 2 months. The patient also received oral prednisolone 20 mg in the first month which was then tapered to 15 mg in the next month, 10 mg in the 3rd month and 5 mg in the 4th month. Hair growth capsules containing biotin and other essential vitamins and amino acids along with topical betamethasone cream once daily were also

given simultaneously. The patient was followed-up monthly to assess hair growth.

To avoid relapse, nearly after 3 months when the complete hair growth was seen, tofacitinib dose was reduced to 5 mg once daily for two additional months.

Laboratory investigations were reported normal during and post treatment. The patient had no associated side effects and the treatment was well-tolerated.

After treatment initiation, some visible improvement was noted after 6-8 weeks and after 3 months, almost complete hair growth was observed as compared to the baseline.

Figure 1- 14-year-old female with multiple patches of non-cicatricial alopecia at baseline.



Figure 2- Near complete response to treatment in 14-year-old female with recalcitrant alopecia areata after 3 months of tofacitinib therapy.



DISCUSSION

The JAK inhibitors, especially tofacitinib, have shown attenuation of the inflammatory cascade^{4,5} but reports are mainly from western world. The evidence of tofacitinib use in young Indian female patients with AA are limited. The reports on JAK inhibitors use in the pediatric population with AA include topical formulations majorly, considering the potential toxicity issues of oral formulations including increased risk for infection and myelosuppression.^{6,7} Here, our case highlights oral tofacitinib based therapy in a young female patient. Tofacitinib is a new, promising and effective therapeutic modality in treatment of recalcitrant and resistant alopecia areata without any significant side effects.

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