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Functional and Cutaneous Treatment Outcomes With Intravenous Immunoglobulin for Eosinophilic Fasciitis: A Retrospective Study

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ABSTRACT

Background: Eosinophilic Fasciitis (EF) is a rare subtype of deep morphea with an elevated risk of functional impairment. No treatment algorithm has been established for adults with EF refractory to traditional corticosteroid or immunomodulatory treatments. Research on cutaneous and functional outcomes of alternative therapies, such as intravenous immunoglobulin (IVIG), remains scarce.

Objective: To describe the functional and cutaneous outcomes associated with IVIG in adults with treatment-refractory EF at a tertiary referral center.

Methods: We performed a retrospective chart review of 18 consecutive patients with EF identified through a billing code search seen within the UCSF Department of Dermatology between 2015 and 2022.

Results: Seven patients (41.2%) underwent at least one course of intravenous immunoglobulins (IVIG) during the study period. Of 6 patients with available follow-up data, 5 patients (83.3%) achieved both sustained cutaneous and functional improvement. In the IVIG cohort, 1 patient (16.7%) achieved complete response with relapse, 4 (66.7%) were partial responders, and 1 (16.7%) was a non-responder who required treatment with mepolizumab. Adverse effects of IVIG included headaches in 1 patient (14.3%) and rash in 2 patients (28.6%). There were no reported veno-occlusive or thromboembolic events associated with IVIG.

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INTRODUCTION

Eosinophilic Fasciitis (EF) is a rare subtype of deep morphea characterized by progressive symmetric sclerosis of the fascia of the distal extremities with or without truncal involvement.[1] Joint contractures, myalgias, and reduced mobility are potential complications.[2,3] While oral corticosteroids remain first-line, almost half of EF patients require other immunosuppressants due to incomplete response or treatment intolerance.[3,4] The use of intravenous immunoglobulin (IVIG) in addition to standard immunosuppressive treatments has been described in a small retrospective cohort study and a few case reports, which reported IVIG treatment responses in adult patients with recalcitrant EF.[4,5,6] This retrospective observational study describes patient- and physician-reported cutaneous and functional outcomes for adults with EF treated with IVIG at a tertiary referral center.

MATERIALS AND METHODS

This IRB-approved study is a retrospective chart review of all adult patients with EF seen within the University of California San Francisco School of Medicine (UCSF) Department of Dermatology from 1/1/2015 to 6/13/2022. Patients with morphea were identified via a search of ICD-10 billing codes: morphea (L94.0) and eosinophilic fasciitis (M35.4). Authors B.O., W.F, and J.G. reviewed electronic health records to assess for clinical diagnosis of morphea. Author A.H. validated cases of diagnostic uncertainty. Data on demographics, morphea subtype, disease characteristics, treatment course, and response were reviewed. Patients were classified as complete responders, partial responders, or non-responders based on erythema and/or induration (resolved, decreased, or increased, respectively), new or expanding lesions (absent, absent, and present, respectively), functional impairment (significantly improving,

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TABLE 1.

Demographic Characteristics and Clinical Response of 6 Patients Treated With IVIG

Patient	Age[a]	Sex	IVIG Dose	Previous Systemic Treatments	# of IVIG Cycles Completed	Adverse Effects	Overall Clinical Response
1	61	F	2g/kg monthly divided over 4 days	MTX Oral Pred IV SSP	33	Urticaria	Complete responder followed by recurrence
2	26	F	N/A[b]	MTX Oral Pred HCQ Jak Inhibitor Cyclosporine	12	None	Non- responder
3	43	M	2g/kg monthly divided over 4 days	MTX Oral Pred Oral SSP	9	None	Partial responder
4	64	F	20g/200 mL subcutaneous ig at home	MTX Oral Pred	34	Headache and acral dyshidrotic reaction	Partial responder
5	81	F	2g/kg monthly divided over 4 days	MTX Oral Pred IV SSP	17	None	Partial responder
6	57	M	2g/kg monthly divided over 2 days	None	N/A[c]	None	Partial responder

[a]Value reflects age at start of IVIG therapy.
[b]Precise dosage unknown; patient received infusions outside of UCSF facilities.
[c]Unknown; patient treated with IVIG for an unrelated neurological diagnosis 2 years prior to treatment of EF.
Abbreviations: F = female, M = male, MTX = methotrexate, Pred = prednisone, SSP = systemic steroid pulse, HCQ = hydroxychloroquine

improving, or worsening, respectively) and physician clinical assessments (complete response, partial response, or non-response, respectively). Qualitative descriptions of cutaneous and functional outcomes were provided through chart notes.

RESULTS

Of 226 patients with morphea, we identified 18 patients (8.0%) with EF, of whom 6 patients (33.3%) had detailed IVIG follow-up data (Table 1). All patients had functional impairments prior to IVIG initiation. IVIG was administered with a corticosteroid and a steroid-sparing agent (SSA) in 5 patients (83.3%); 1 patient (16.7%) received a SSA only. While IVIG was never provided as a monotherapy, five patients (83.3%) discontinued oral corticosteroids while on IVIG. The average duration of IVIG therapy was 20.6 ± 16.4 months, and the standard IVIG dose was 2g/kg monthly divided over 2-4 days (Table 1).

Four patients (66.7%) reported both cutaneous and functional improvement within 2 months (Table 2). Both cutaneous and functional improvement were sustained across subsequent IVIG cycles in 5 patients (83.3%). Four patients (66.7%) were partial responders (Table 1). One patient (16.7%) achieved complete remission after 36.3 months of therapy; they relapsed with focal truncal involvement within 3 months of discontinuation, but without new functional deficits, and IVIG was not resumed. One patient (16.7%) was a non-responder with new lesions and persistent polyarthralgias who discontinued IVIG and achieved a partial response with mepolizumab. Adverse effects of IVIG included urticaria without systemic symptoms in 1 patient (16.7%) and headaches, malaise, and an acral dyshidrotic reaction in 1 patient (16.7%). No patients experienced a thromboembolic or veno-occlusive event.

TABLE 2.

Patient-Reported Clinical Outcomes of 6 Patients Treated With IVIG

Clinical Outcome	Number of patients (%)[a]
Function[a]	
Improved mobility	4 (66.7)
Improved range of motion	6 (100)
Reduced joint stiffness	2 (33.3)
Return to physical activity	2 (33.3)
Subjective endorsement of global improvement	4 (66.7)
Cutaneous	
Reduced skin tightness	3 (50.0)
Skin softening	3 (50.0)
Skin stability	2 (33.3)
Reduced skin stiffness	1 (16.7)
Reduced swelling	1 (16.7)

[a]Values may not add up to 100%, as an individual patient may have multiple findings within a category.

DISCUSSION

This study expands on limited available data supporting IVIG as a well-tolerated add-on therapy for patients with EF who suffer persistent cutaneous disease and functional impairment despite corticosteroids and SSAs. Although concomitant treatment with corticosteroids and SSAs may have reduced our ability to isolate the effects of IVIG, we emphasized careful comparison of patient and provider-reported clinical findings before, during, and after treatment courses with and without IVIG to thoroughly characterize its impact. While this small cohort study is limited by its retrospective nature and the rarity of EF, we present

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findings from the largest cohort of adults with EF treated with IVIG to date, offering additional support for the use of IVIG as an adjunctive treatment to traditional systemic therapies, particularly in recalcitrant cases.

DISCLOSURES

Author A.H. is a consultant to CSL Behring and Guidepoint LLC. Other authors have no conflicts to report.

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