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Case Report
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Successful Treatment of a Refractory Polymyositis Patient with Tofacitinib

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Abstract

The inflammatory myopathies are a group of disorders sharing the common feature of immune-mediated muscle disorder. The most common of these disorders include; Dermatomyositis (DM), overlap syndromes (with another systemic rheumatic disease), Inclusion Body Myositis (IBM) which is usually refractory to conventional therapy, Immune-Mediated Necrotizing Myopathy (IMNM) and Polymyositis (PM). Other subtypes of inflammatory myopathy include eosinophilic myositis and granulomatous myositis.

Polymyositis treatment is usually prolonged and includes a battery of immunomodulating medications mainly systemic steroids, methotrexate and azathioprine frequently used in combination but many cases prove resistant necessitating more potent therapeutic options such as rituximab, Intravenous Immunoglobulin (IVIG), mycophenolate mofetil, cyclosporine, tacrolimus and cyclophosphamide, however the outcome of such therapies can still be unsatisfactory.

Keywords: Polymyositis (PM); Dermatomyositis (DM); Janus kinase (JAK)

Case Presentation

A 49 years old Egyptian female who lives in Dubai and is a known case of inflammatory polymyositis diagnosed in 2010, starting as facial rash of photosensitive character, associated with marked sicca symptoms, dry eyes and mouth, that was followed by difficulty in walking, climbing stairs and standing up from a sitting position and was followed later by difficulty in swallowing with shortness of breath for which she had to be on high doses of systemic steroids in addition to DMARDs combinations with partial response.

Clinically, obese physique, BMI 31 kg/sq.m. She had a cushingoid appearance being on long term steroids with an erythematous puffy face. She had low-grade polysynovitis of the small joints of hands with objective motor weakness grade 4/5 in upper and lower limbs in a pattern of proximal myopathy distribution. There was also similar grade weakness in cervical and trunkal muscles.

Investigations showed ANA positive 2+ speckled pattern, ANA profile 1+ positive SSA/Ro60 and Ro52. Creatinine Kinase (CK) elevated 1059 IU/L. CRP 7.4 mg/L. ESR 42 mm/1st h. Normal FBC and creatinine. Vitamin D corrected after replacement to 40 ng/ml. Anti CCP antibody negative. Rheumatoid factor isotypes IgG, IgM and IgA were all negative.

Electromyography (EMG), reported as showing increased insertional activity with spontaneous fibrillations, abnormal myopathic low-amplitude and short-duration polyphasic motor unit potential In favor of Polymyositis.

Muscle biopsy show endomysial mononuclear cell infiltrates. She qualified for a diagnosis of polymyositis based on the Bohan and Peter classification criteria. Laboratory and imaging screening to rule out underlying occult malignancy was negative.

Regard medications, she has been on Azathioprine tablets 150 mg once daily and Prednisolone tablets 20 mg once daily as a long-term therapy over the last five years. Previous medications included Hydroxychloroquine and Leflunomide, both were only partially effective thus were discontinued. Methotrexate was not tolerated due to troublesome dyspepsia.

Other therapeutic options considered including Rituximab or Mycophenolate Mofetil. However, Tofacitinib was reported in a small study to be a highly effective therapeutic agent for the treatment of Dermatomyositis [1]. Thus, she was initiated on Tofacitinib tablets in a dose of 5 mg bid in combination with her regular medications. Four weeks after initiating this therapy she reported

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marked improvement with almost full resolution of joints' pain and improved muscle power.

After eight weeks, she became able to rise up from praying position without assistance and able to climb stairs unassisted. Prednisolone dose reduced with a further tapering achieved to a current dose of 3 mg once daily.

Azathioprine was discontinued, Creatine kinase level dropped to 222 IU/L.

Discussion

The Janus Kinases (JAK) are cytoplasmic protein tyrosine kinases that are critical for signal transduction to the nucleus from the common gamma chain of the plasma membrane receptors for interleukin (IL)-2, 4, 7, 9, 15, and 21. Up regulation of the Janus Kinase (JAK) 1/3 has been found to have a key role in the development, activation, differentiation and proliferation of T cells [2].

Tofacitinib is a small molecule, orally active drug that preferentially inhibits JAK-1 and JAK-3. It was demonstrated to reduce disease activity in patients with rheumatoid arthritis in a series of randomized trials, including patients with active rheumatoid arthritis and inadequate responses to methotrexate, other traditional (nonbiologic) DMARDs, and Tumor Necrosis Factor (TNF) inhibitors. The degree of benefit appeared at least comparable to the TNF inhibitor, Adalimumab, with which it is directly compared [3]. Also approved for treating psoriatic arthritis and for adults with moderate to severe UC who have failed or are intolerant to anti-TNF agent-based therapy.

Polymyositis (PM) and Dermatomyositis (DM) can have heterogeneous clinical presentations but with a limited number of effective drugs making its treatment a challenging task.

Studies have shown that Tofacitinib may reduce CD8+ T cells and might be useful in CD8+ T cell driven diseases like PM and DM. Oral Tofacitinib demonstrated a strong clinical efficacy and good safety in the first-ever formal study of a Janus kinase inhibitor in patients with active, treatment-resistant dermatomyositis [1,4].

This case report should serve as an additional evidence for Tafacitinib as a powerful therapeutic agent in the treatment of PM.

References

1. Paik JJ, Albayda J, Tiniakou E, Koenig A, Stine LC. A study of tofacitinib in refractory dermatomyositis (STIR): An open label pilot study in refractory dermatomyositis. Arthritis Rheum. 2018;70(suppl 10).
2. Ghoreschi K, Jesson MI, Li X, Lee JL, Ghosh S, Alsup JW, et al. Modulation of innate and adaptive immune response by tofacitinib. J immunol. 2011;186(7):4234-43.
3. Charles-Schoeman C, Burmester G, Nash P, Zerbini CA, Soma K, Kwok K, et al. Efficacy and safety of tofacitinib following inadequate response to conventional synthetic or biological disease-modifying antirheumatic drugs. Ann Rheum Dis. 2016;75(7):1293-301.
4. Babaoglu H, Varan O, Atas N, Satis H, Reyhan S, M, Tufan A. Tofacitinib for the treatment of refractory polymyositis. J Clinical Rheum. 2019;25(8):141-2.