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Drug-induced dermatomyositis after lacosamide: A case report.

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Drug-induced dermatomyositis after lacosamide: A case report

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INTRODUCTION

Dermatomyositis (DM) is an autoimmune connective tissue disease characterized by cutaneous manifestations, muscle inflammation, and proximal muscle weakness. DM may develop in patients after an environmental insult initiates an autoimmune reaction in genetically predisposed individuals.[1] Environmental triggers of DM cited in the literature include ultraviolet radiation, viruses, vaccines, medical devices, emotional stress, and drugs.[2] Although the role of drug-induced DM is not well established, many drugs have been implicated in the development of DM. A review of 70 case reports by Seidler and Gottlieb[3] identified hydroxyurea, penicillamine, and hydroxymethylglutaryl Co-A reductase inhibitors as the most common drugs described in drug-induced DM. Other drugs included phenylbutazone, cyclophosphamide, etoposide, imatinib mesylate, interferon-α2b, omeprazole, phenytoin, tegafur, alfuzosin, etanercept, and gemfibrozil.[3] Here we describe a case of a woman who had DM after treatment with lacosamide. To our knowledge, drug-induced DM from lacosamide has not been reported previously.

Abbreviations used:

AED:	antiepileptic drug
ANA:	antinuclear antibodies
CDASI:	Cutaneous Dermatomyositis Disease Area and Severity Index
DM:	dermatomyositis
HCQ:	hydroxychloroquine

CASE

A 49-year-old white woman with a history of partial seizures presented to her dermatologist with a 3-month history of rash and proximal muscle weakness in February 2017. The patient had a red, pruritic rash on her chest 1 month after starting 150 mg of lacosamide twice daily for her seizures. The rash traveled to her bilateral ears, elbows, hands, and the nasal bridge over the next 2 months with mild transient proximal muscle weakness during this time. Clinical evaluation found antinuclear antibodies (1:160) with speckled pattern. Serum studies for Smith, RNP, SS-A/Ro, SS-B/La, Mi-2, and Jo-1 were negative. Additionally, creatinine kinase and aldolase were within normal limits. Antithyroid peroxidase antibodies were significantly elevated at 305 IU/mL (normal level, <35 IU/mL); however, thyroid function test results were within normal limits. A biopsy of the proximal interphalangeal joint found a lichenoid dermatitis with positive granular C5B-9 and weaker IgM and C3 deposition along the basement membrane zone on direct immunofluorescence. She was prescribed topical steroids and referred to a private rheumatology practice for further assessment. The patient was given a preliminary diagnosis of autoimmune thyroiditis and DM by her rheumatologist in March 2017 and was prescribed 10 mg/d of prednisone with a 5-mg taper each month. She completed her prednisone taper before presenting to our clinic in May 2017.

On presentation, the patient reported minimally improved skin symptoms since taking prednisone.

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The remainder of review of systems was negative. Physical examination was significant for erythema on the chest, elbows, right ear, extensor upper arms, and erythematous plaques or Gottron papules over the proximal interphalangeal joints. There were proximal fingernail fold telangiectasias on dermoscopy. She had 5/5 muscle strength in both upper and lower extremities. She was prescribed 400 mg/d of hydroxychloroquine (HCQ) and continued with topical steroids.

On follow-up examination 3 months later, the patient's skin findings were unchanged from those of her previous visit, and she had a documented Cutaneous Dermatomyositis Disease Area and Severity Index (CDASI) score of 13. Despite her limited improvement, the patient was kept on the same dose of HCQ but was instructed to stop taking lacosamide by her neurologist. Four months after discontinuing lacosamide, the patient presented to our clinic with significant improvement of her skin eruption. On examination, the patient's CDASI score decreased 7 points from her last visit to a score of 6. Her pulmonary function test results were within normal limits, and pelvic ultrasound scan found a benign fibroid. Given the improvement of her symptoms after withdrawal of lacosamide, the patient was kept on the same dose of HCQ.

DISCUSSION

Biopsy-proven DM developed in our patient 1 month after starting lacosamide and had persistent symptoms despite treatment with prednisone and 3 months of maximum-dose HCQ. After being off of lacosamide for 4 months, her CDASI improved 7 points from a score of 13 to a score of 6, a decrease that is defined as significant clinical improvement based on CDASI validation studies.[4] These findings fulfill the World Health Organization causality assessment criteria for a "probable causal relationship" between lacosamide and the development of DM.[5] Although the patient did not have concurrent lung disease or malignancy based on screening tests, she will still require routine monitoring.

Given the known association of autoimmune thyroiditis with DM, the patient was likely genetically predisposed to DM development, and lacosamide may have acted as an environmental trigger.[6] Lacosamide, a third-generation antiepileptic drug (AED), acts on neuronal voltage-gated sodium channels and has only been previously described to cause cutaneous manifestations through hypersensitivity reactions.[7] The mechanism for drug-induced DM remains unclear; however, it has been proposed that certain drugs may inflict damage to endothelial cells leading to release of cellular antigens and epitope spreading, which causes an autoimmune reaction.[2] Though early generations of AEDs have actually been found to dampen the immune response, lacosamide is a newer drug and its effects on nonneuronal cells and the immune system have not been studied.[8]

CONCLUSION

Although lacosamide has not been reported previously to induce dermatomyositis, we have found a temporal relationship in the development of dermatomyositis with lacosamide exposure and improvement of symptoms upon withdrawal of the drug. Physicians should be aware of this relationship and consider lacosamide as a possible etiologic factor in development of dermatomyositis.

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