Methotrexate in the Treatment of Chronic Itch in the Geriatric Population

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Itch is a very common dermatologic symptom in the geriatric population, ranging from 7% to 37.5%, and severely impacting quality of life (1). Risk factors for developing chronic pruritus in the geriatric population are multifactorial including immunosenesence, dry skin and neuropathies (2). Treatment of pruritus in the elderly imposes a challenge due to multiple comorbidities and possible drug interaction (3). Methotrexate is an immunosuppressant that has been used since the 1960s to treat many dermatoses such as psoriasis, atopic dermatitis, bullous disorders, and cutaneous lymphoproliferative disorders (4). Its proposed anti-inflammatory and immunomodulating mechanisms of action are related to the adenosine pathways and nucleic acid synthesis inhibition in activated T cells and keratinocytes, respectively (4). However, its exact anti-pruritic mechanism of action is unknown. Here, we present the use of low-dose methotrexate in a geriatric population with multifactorial and severe pruritus that was unresponsive to numerous other oral and topical treatments (**Table I**).

CASE REPORTS

Our case series includes two men and one woman, with an age range of 74 to 81. All of the patients had severe itch prior to beginning methotrexate with skin rashes that included urticarial dermatitis and prurigo nodularis. None of these patients had history of atopic eczema or biopsy suggestive of bullous pemphigoid or other primary skin diseases; their previous biopsies were non-specific, showing spongiotic dermatitis. Their numerical rating scale (NRS) ratings were 8 to 10. Itch ratings drastically decreased by the time of follow-up visits (6 to 18 weeks after beginning methotrexate). Side effects of methotrexate were minor with one patient reporting drowsiness. Two out of 3 patients reported having no itch after being treated with methotrexate for a few months, and the patients who achieved no itch maintained this level at follow-up appointments. All patients were educated on dry skin care during their first visit. Initial dosages of methotrexate prescribed ranged from 12.5 mg to 15 mg weekly (Table I). After a notable reduction in itch for a few months, we recommend a slow tapering of methotrexate down 2.5–5 mg.

DISCUSSION

Overall, low-dose methotrexate is a cost-effective medication with minor side effects and high efficacy in the reduction of pruritus that is safe to use in the geriatric population in comparison to other immunosuppressants such as systemic corticosteroids and cyclosporine. The downside to methotrexate as a long-term treatment is the

Table I. Features of patients receiving methotrexate

Sex/Age, years	Duration of itch (months)	Severity of worst itch pre-MTX (NRS 0–10)	Severity of worst itch at follow up visit NRS (0–10)	Causes of itch	Previous failed treatments for itch	Initial dose of MTX	Length of time for anti-pruritic effect	Side effects of MTX	Comorbidities
M/76	1 year	10	3	Drug eruption, Allergic contact dermatitis, Urticarial dermatitis	Topical steroids: (Hydrocortisone 1% cream; Clobetasol 0.05% cream; Triamcinolone 0.1% ointment; Tacrolimus 0.1% ointment; Fluocinonide 0.05% external solution) Prednisone: (Taper starting at 40 mg) Antihistamines: (Hydroxyzine 75 mg; Loratadine 10 mg) Mirtazapine (15 mg)	12.5 mg	6 weeks	Drowsiness	Hypercholesterolemia
M/81	7 years	10	0	Urticarial dermatitis	Topical steroids: (Betamethasone 0.05% cream; Clobetasol 0.05% ointment; Mometasone 0.075%) Prednisone: (5mg daily for 3 months) Mirtazapine (15 mg)	12.5 mg	18 weeks	None noted	Atrial fibrillation Polymyalgia rheumatica Anxiety Hypercholesterolemia
F/74	1 year	8	0	Prurigo nodularis, Xerosis cutis	Topical steroids: (Ketamine 10%, Lidocaine 5%, and Amitriptyline 5%) Gabapentin: (Maximum dose of 1,800 mg daily)	15 mg	6 weeks	None noted	Hypertension Hypercholesterolemia Hypothyroidism Depression Arthritis Gastroesophageal reflux

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routine monitoring required. However, the recommendations for monitoring vary (4). We ordered a full blood count and comprehensive metabolic panel at baseline, then every month for the first 6 months, and then every 2 months after the patient was on a stable dose. In our sample of elderly patients suffering from chronic pruritus of varying etiologies, methotrexate significantly reduced their itch NRS ratings, majority to zero itch, with minimal notable side effects (Table I). Of note, our patients were complex with multiple comorbidities, and their itch had been resistant to many other previous treatments. We propose that methotrexate be considered as a treatment for complex pruritus in the geriatric population.

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