Emerging treatment of prurigo nodularis with dupilumab

A 69-year-old woman presented to the allergy and immunology clinic in May 2023 with a recurrent pruritic rash on the arms and legs, which first began within 24–48 h of taking Bactrim (sulfamethoxazole and trimethoprim) and persisted for 3 months after antibiotic cessation. The patient had a medical history of osteoarthritis, depression, and insomnia. The patient’s symptoms originally improved upon taking prednisone, and she was rash-free for 3 months. The patient was then evaluated by dermatology and was offered a skin biopsy, but she declined in favor of wishing to trial medical management first. Once the symptoms recurred, the patient did not experience symptomatic relief following treatment with topical triamcinolone and clobetasol or oral methylprednisolone and prednisone. The patient presented to our outpatient allergy and immunology clinic with excoriated nodular lesions of the extremities while on a current regimen of hydroxyzine. Given her history, biopsy was not advised. The patient was diagnosed with prurigo nodularis (PN), a chronic inflammatory skin condition for which dupilumab was recommended every 4 weeks (Figure 1).

PN is associated with intensely pruritic and hyperkeratotic nodules that are symmetrically distributed along the extensor surfaces of the extremities [1]. Distinguishing features include light to bright red papules, nodules, and plaques that are excoriated and have hyperpigmented margins. These lesions range from millimeters to centimeters in size and can be as numerous as hundreds of nodules [2]. The research suggests that PN may disproportionately affect women in frequency, age of onset, and severity, with risk factors including chronic medical diseases [3]. Biopsy can confirm the diagnosis of PN. One retrospective study analyzed skin biopsies of 136 patients with PN, noting the presence of highly characteristic thick compact orthokeratosis, irregular epidermal hyperplasia or pseudopitheliomatous hyperplasia, focal parakeratosis, and fibrosis of the papillary dermis [4].

The goal of PN therapy is to disrupt the itch-scratch cycle and improve quality of life, yet there is great variability between providers and treatment regimens [1]. Although the mainstays of PN therapy have included topical steroids and systemic antipruritic agents, phototherapy, and oral immunosuppressives, these agents prove only partially beneficial for symptomatic relief with mixed results [3]. In December 2022, dupilumab was approved for the indication of PN. With this recent approval, there is potential for more comprehensive treatment. Dupilumab inhibits signaling of interleukin (IL)-4 and IL-13 by blocking their shared receptor component IL-4Rα. In two parallel phase 3 trials, dupilumab-treated patients achieved clinically significant reduction in itch and in the number of lesions by week 24 when compared to placebo-treated patients. Improvements from baseline were also noted in quality of life, skin pain, anxiety, and depression [5].

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PN is characterized by firm, pruritic nodules that vary in size and color, located symmetrically on the extensor surfaces of the extremities. The use of biologic treatments, such as dupilumab, that directly target the pathologic mechanism of PN may provide enhanced benefit when compared to topical steroids and antihistamines. Although some symptomatic benefit has been achieved with these topical or systemic agents, the potential for greater efficacy of dupilumab has been demonstrated.

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References