Hormonal Influences on Nocturnal Pruritus During Perimenopause

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BACKGROUND

Nocturnal pruritus represents a clinically important manifestation of itch with substantial potential to impair sleep continuity and daytime functioning. The menopausal transition produces dynamic fluctuations and progressive reductions in estrogen that may influence epidermal barrier integrity, cutaneous hydration, thermoregulation, inflammatory signaling, sensory processing, and circadian physiology. Each pathway carries relevance to both pruritus and sleep disturbance. Despite overlapping biological mechanisms and a recognized burden of pruritic symptoms during menopause, the relationship between perimenopause and nocturnal pruritus remains poorly defined.

OBJECTIVES

To evaluate literature examining pruritus, nocturnal itch, cutaneous manifestations of the menopausal transition, and perimenopause-associated sleep disturbance and to characterize biological mechanisms potentially linking hormonal changes with nocturnal pruritus.

METHODS

A narrative literature search of PubMed, Embase, and Scopus evaluated studies addressing pruritus, nocturnal pruritus, pruritic dermatoses, menopause-related cutaneous changes, hormonal influences on skin physiology, and sleep disturbance during the menopausal transition. Evidence was synthesized to evaluate potential relationships among perimenopausal hormonal changes, cutaneous itch pathways, circadian physiology, and nocturnal symptom burden.

RESULTS

No identified studies directly evaluated nocturnal pruritus specifically among perimenopausal populations, demonstrating a significant gap despite evidence supporting biological plausibility. Literature addressing nocturnal pruritus describes circadian variation in corticosteroids and melatonin, nocturnal alterations in epidermal barrier function, and temporal changes in cutaneous physiology as potential contributors to nighttime itch; however, menopausal stage and reproductive hormonal status have rarely undergone consideration as modifying factors. Menopause-associated pruritus has received greater recognition, with one cohort reporting pruritus among 46% of postmenopausal women. Cutaneous manifestations may develop during the menopausal transition before development of later systemic consequences associated with prolonged estrogen deficiency. A retrospective analysis of 8,156 dermatology outpatient encounters among women aged 45–55 years identified eczematous disorders and urticaria among leading dermatologic diagnoses, although investigators did not evaluate temporal patterns of itch. Evidence further supports potential hormone-dependent modulation of pruritus through estrogen receptor activity in keratinocytes and estrogen-mediated effects on epidermal hydration, collagen composition, barrier integrity, and cutaneous homeostasis. Vulvar lichen sclerosus provides an additional clinically relevant model linking menopause-associated dermatologic disease with pruritus. Among a cohort of 287 patients, 87% of cases occurred in women older than 50 years, while separate studies have described nocturnal exacerbation of associated pruritus. Perimenopause carries a substantial burden of sleep disturbance, yet literature primarily attributes impaired sleep to vasomotor symptoms, reproductive hormonal fluctuations, and circadian disruption, with minimal consideration of pruritus as an independent or contributory nocturnal symptom.

CONCLUSION

Available evidence supports a plausible relationship between perimenopausal hormonal changes and nocturnal pruritus despite limited direct characterization. Synthesis of the current literature points to

nocturnal pruritus as a potentially important and underrecognized component of symptom burden during the menopausal transition.

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