Parameters of Scratch Pleasurability in the Management of Pruritic Conditions

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PRACTICE **POINTS**

- In individuals with pruritic skin conditions, the itch-scratch cycle can have damaging consequences such as anxiety, infection, and secondary skin changes.
- Understanding the pleasurability of scratching in pruritic skin conditions allows providers to help patients break the itch-scratch cycle and improve quality of life.

To the Editor:

The itch-scratch cycle refers to the sequence created when a pruritic skin condition leads to scratching and skin barrier disruption, ultimately facilitating secondary skin changes and neural activation that prolongs pruritus. In patients with pruritic conditions, the itch-scratch cycle often can run unrestrained, with patients unaware of their scratching habits. Understanding what drives a patient to scratch, such as the pleasure gained from scratching, may be beneficial for dermatologists combating a patient's scratching habits. The earliest documented attempts to understand the mechanism of an itch were made in Greece around the fifth century, but the pathophysiology of this sensation still is not fully understood. The Latin term *pruritus* refers to itching, irritation, or sexual excitement, while the Greek term *knêsmos* and related words also denote itch in an irritating or pleasurable sense.[1] This paradoxical duality of irritation and pleasure is a phenomenon all too well understood by those affected with pruritic symptoms.

Although there are many measured characteristics of an itch, the pleasure granted from scratching an itch rarely is addressed. Understanding the factors influencing the pleasurability of scratching could help improve management and outcomes of patients' pruritic conditions.

Pruritus is associated with a wide array of etiologies including dermatologic, infectious, metabolic, and autoimmune, but unanimously it evokes a strong desire to scratch. Scratching an itch often yields temporary relief from the irritation by dispensing a complex sensory concoction between pleasure and pain.[2] The neurobiology behind this pleasure phenomenon is inconclusive. Some hypotheses point to how scratching-induced pleasure may be derived from the deactivation or inhibition of the unpleasant sensation of an itch in the central nervous system, the stimulation of the reward signals in the C-fiber system in the peripheral nervous system, the release of pruritis-inhibiting prostaglandin D2, or a combination of these pathways. Levels of sensation and pleasure induced from itch attenuation by scratching even vary based on anatomic location. One study demonstrated that, when compared to the forearms, the ankles and back perceived baseline induced itch most intensely, but no significant difference in perceived itch intensity was found between the ankles and back. Additionally, scratching an itchy back

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or ankle notably induced more pleasure when compared to the forearms, but there was no significant difference in scratching pleasurability between the ankle and back.[3]

Although there are adequate questionnaires and scales (eg, ItchyQoL,[4] Skindex-16, Skindex-29) to quantify the severity of pruritus and its effects on a patient's quality of life, these measurements do not assess the pleasure yielded from scratching, the impact of scratch pleasure on the patient experience, or the effect of scratch pleasure on the disease state.[4] It appears that there are inadequate assessment tools to define factors associated with the pleasurability of scratching. A PubMed search of articles indexed for MEDLINE using the terms *scratching pleasure scale* and *pruritus pleasure questionnaire* yielded scarce results measuring patient perspectives on scratching-associated pleasure. A pertinent study performed by O'Neill et al[5] compared the differences in itch characteristics between patients with psoriasis and those with atopic dermatitis using a web-based questionnaire featuring a numerical pleasure scale (ranging from −5 [highly unpleasurable] to +5 [highly pleasurable]) on an 11-point Likert scale. The questionnaire sought to measure the effects of scratching during a typical episode of itch within the past 2 weeks. Scratching was found pleasurable in both groups of patients.[5] Another web-based questionnaire that characterized pleasurability in scratching a typical episode of itch in individuals with atopic dermatitis using a −5 to +5 Likert scale (−5 [highly unpleasurable] to +5 [highly pleasurable]) found that most participants perceived scratching as pleasurable and that there was a positive correlation between itch intensity and scratch pleasurability.[6] Both of these studies quantified that scratching an itch is pleasurable, a correlation that may not come as a surprise. This direct correlation suggests that a more detailed analysis of this scratch pleasure could be beneficial in the management of pruritic conditions.

Treating the underlying cause of an itch is key to inhibiting the sensation; in some cases, anti-itch medications must be used. Current medications have limited effects on itch relief, but an expanding understanding of itch pathophysiology through clinical and laboratory research in the fields of dermatology, immunology, and neurology is paving the way for promising new therapeutic medications.[7-11] In a review of the literature, Sanders and Akiyama[12] elucidated the influence of stress and anxiety in scratching an itch and the way in which both pharmacologic and nonpharmacologic (ie, psychological and educational interventions) may be used to help break the itch-scratch cycle. Possible techniques include habit-reversal training, relaxation therapy, and cognitive behavioral therapy.[13] Understanding patient perspectives on the pleasure yielded from scratching an itch and the disease factors that influence this pleasure seeking are paramount to reducing patient scratching. In understanding the pleasurability of scratching in pruritic conditions, the itch-scratch cycle and its accompanying deleterious effects (eg, stress, anxiety, pain, infection, secondary skin changes) can be broken.

The pleasure yielded from scratching an itch is a component of patient scratching habits that should be analyzed and quantified to reduce itch in pruritic conditions, mitigate damaging consequences of scratching, and improve the quality of life of patients with pruritic conditions. Furthermore, this understanding may help guide clinicians in management, such as counseling patients on the itch-scratch cycle and deciding which forthcoming medications could ameliorate a patient's pruritic symptoms.

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