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Sexual Health and Dermatologic Diseases: A Review

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Introduction

Skin is the interface between our bodies and the world around us. The skin can clarify how physical and psychosocial factors interact, and can have adverse effects on health (1, 2, 3). Chronic skin diseases vary widely in symptoms, signs, as well as distribution. While skin lesion patterns that are confined to covered areas require urgent and effective treatment, disease patterns that involve readily visible body areas may result in behavioral and emotional dysfunction (1, 3).

Sexual dysfunction in adults has been linked to the emotional and psychosocial aspects of some dermatological diseases, based upon both the visual discomfort and emotional stigma based on other's negative reactions. Several studies have confirmed the negative impact of chronic skin diseases on a woman's quality of life and sexual function (4, 5). Sexual dysfunction may also be caused by medications utilized to treat some skin diseases.

Skin diseases, especially chronic and/or pruritic diseases, may cause including increased stress, poor self-esteem, social phobia, anxiety, and depression (6). Although not often discussed during routine dermatology visits, sexual complaints and erectile dysfunction (ED) are often experienced in patients with chronic skin conditions, including:

- Acne Inversa;
- Atopic Dermatitis and/or Eczema;
- Neurodermatitis;
- Psoriasis;
- Urticaria; and,
- Vitiligo,
- As well as in patients treated with medications used in dermatology, such as:
- Retinoids; and,
- 5a-Reductase Inhibitors (7, 8, 9).

Both the etiology and treatment of sexual dysfunction related to dermatologic conditions is multifactorial, involving medication side-effects, physiologic influences of the dermatologic condition (ie increased inflammation), and psychological/social influences related to appearance and interpersonal dynamics. This paper will explore the role of dermatologic diseases and treatments in sexual dysfunction in men and women.

Discussion

Neurodermatitis:

Neurodermatitis is a psychocutaneous (self-inflicted) skin disorder. Neurodermatitis is a chronic skin disease, which is generally the result of scratching, picking, or pulling on the dermis (10). Lichen simplex chronicus (neurodermatitis circumscripta) is a subtype of neurodermatitis associated with demoralization, depression, anxiety, obsessive-compulsive disorder, and sleep disturbances (11). A 2011 study compared the sexual function of biological females with Lichen simplex chronicus vs that of healthy controls. This study found a decrease in sexual satisfaction, orgasm, lubrication, arousal, and desire in participants with neurodermatitis (4). Another study examining the quality of life effects of skin conditions found that neurodermatitis was associated with sexual difficulties. The study also showed that neurodermatitis was a more sexually problematic condition than some other diseases including psoriasis (5).

Acne Inversa:

Acne inversa, or hidradenitis suppurativa, is a chronic inflammatory disorder of follicles. This condition typically involves the axillae, inframammary folds, groin, or buttocks. It is more commonly found in women (12). Acne inversa can cause discomfort in intimate areas which may play a role in its sexual dysfunction effects. A study using validated questionnaires reported sexual dysfunction in both biological males and females, with females having a higher incidence rate (13). However, a study from 2022 found that 40.6% of biological women with acne inversa had sexual dysfunction, while 58.8% of biological men with acne inversa had erectile dysfunction. This negatively affects the quality of life of both the patient and their sexual partner (14).

Atopic Dermatitis

Atopic dermatitis (eczema) has a strong genetic predisposition and the presentation varies based on the age of the patient. Some clinical features include pruritus and scratching, dry skin, lichenification, lesions, and a course of exacerbations and remissions (15). Atopic dermatitis has shown a high prevalence of sexual dysfunction in some studies. A cross-sectional analysis revealed sexual dysfunction in 66.9% of males and 76.9% of females (16). A meta-analysis of sexual dysfunction in men with atopic dermatitis showed that the degree of mental burden is correlated with the severity of the disease. The likelihood of sexual dysfunction may be correlated with severity as well. However, there is not current data to support it (17).

Psoriasis

Psoriasis is an immune-mediated chronic disease that typically presents with scaly red or pink plaques on the lower back, knees, elbows, scalp, and gluteal cleft. Psoriasis is very common and affects over 2% of the United States population (18). A study from 1997 first documented sexual dysfunction in 40.8% of psoriatic patients (19). Multiple studies have continued to follow the effect of psoriasis on sexual function. It is currently unclear how the severity of the disease affects sexual dysfunction. One study found erectile dysfunction in 56.67% of mild psoriasis patients, 46.68% of severe psoriasis patients, and 23.33% of a control group (20).

Urticaria

Urticaria involves vasodilation of structures in the superficial dermis. Urticaria presents on any area of the body as well-circumscribed wheals with erythematous raised borders with blanched centers. These lesions may coalesce to form giant wheals (21). Chronic spontaneous urticaria, a subtype of urticaria, more commonly presents in biological females (22). One study showed the prevalence of sexual dysfunction to be over 2/3rds of biological females affected by chronic spontaneous urticaria (22). Patients experiencing severe urticaria reactions are more likely to experience sexual dysfunction, as a 2018 study concluded that sexual dysfunction was correlated with the severity of urticaria (23).

Vitiligo

Vitiligo is characterized by depigmented skin caused by the loss of epidermal melanocytes. This disease has equal

incidence rates in all skin colors. However, is most contrasted in those with darker skin color (24). A meta-analysis of vitiligo and sexual dysfunction found a higher rate of sexual dysfunction in those with vitiligo. This study hypothesizes that the sexual dysfunction may be due to an inferiority complex (25). Supporting this hypothesis is a systemic review of the psychological effects of vitiligo. The study revealed a prevalence of depression, anxiety, and psychosocial comorbidities (26).

Retinoids

Retinoids are used as cosmetics and prescription drugs. They work by activating retinoid receptors and act as transcription factors. Common retinoids include tretinoin, acitretin, adapalene…etc (27). Although evidence is limited, multiple case studies have shown the occurrence of sexual dysfunction while using retinoids (28,29).

5-Alpha-reductase inhibitors

5-Alpha-reductase inhibitors (finasteride and dutasteride) act by inhibiting the conversion of testosterone to dihydrotestosterone (30). These drugs are commonly used in benign prostatic hyperplasia (BPH) (30). Common side effects of these drugs include erectile dysfunction, decreased libido, and decreased volume of ejaculation (30).

Psychologic Factors

Sexual dysfunction, such as erectile dysfunction can be organic due to vascular, neurologic, endocrine, or medication effects, or a psychogenic disease caused by depression or anxiety (31). For example, the pathophysiology of some organic erectile dysfunctions includes spinal cord injury (neurologic), vasculopathy of the cavernosal arteries (vascular), and thyroid dysfunction (endocrine) (32). Psychogenic effects may be more prominent, as a study on middle-aged women found that sexual health was related more strongly to mental health than to age, stress, or physical function (33). Certain specialists contend that the distinction between organic and psychogenic sexual dysfunction lacks significance, as even organic sexual dysfunctions are partly influenced by psychogenic factors. This is attributed to the fact that sexual functioning inherently requires a relational component (34). Additionally, traumatization from the initial experience of sexual dysfunction then makes it impossible to rule out a psychogenic cause of future experiences.

Dermatological conditions have an increased prevalence of depression and anxiety. One analysis showed that easily visible skin diseases such as vitiligo, eczema, psoriasis, and acne had similar rates of anxiety (35). The anxiety and depression of skin diseases may even lead to suicide ideation (36). Recent research suggests that sexual dysfunction is not a side effect of depression nor anxiety, but that all three are caused by an underlying latent psychological vulnerability (37). Body image and stigmatization also play a role in the perceived experience of one's anxiety and depression (38, 39). Body image is one's own perception and attitude toward their own physical appearance (38). In some patients, dermatological diseases have a negative effect on their body image. Sexual experiences and behaviors are hindered by dissatisfaction with body image. There is also a positive relationship between sexual performance and sexual self-concept which leads to less anxiety and worries due to body image (40). Stigmatization is a form of social control that aims to exclude a person from a relationship or society and does not distinguish between a person and his or her deviant behavior or condition (39). A meta-analysis of stigmatization in pediatric patients with skin diseases revealed lower quality of life, poor psychological health, and more severe somatic disease (41). Stigmatization was also correlated with the severity of some diseases including atopic dermatitis (42).

Physiologic Factors

Clearly, a strong relationship exists between the skin's health and the patient's psychological well-being. The experiences of an individual definitely play a role in this relationship, but the Psycho-Neuro-Endocrine-Immunology (PNEI) concept may also serve a large role (43). PNEI studies the linkage of the nervous, endocrine, and immune systems along with the correlations of physical health (43). Pathological and physiological processes may alter the

cytokines, hormones, neuropeptides, growth factors, and other signaling molecules (43). The gut, brain, and skin participate in a continuous cross-talk to regulate the physiologic levels of these molecules (43). Modulation of the gut with probiotics can even decrease stress-induced neurogenic skin inflammation (44). Dermatological diseases cause unwanted stress in patients' lives. This stress causes the release of proinflammatory cytokines leading to flare-ups in dermatological diseases (45). The skin also undergoes loss of immunocompetence and microbial changes in atopic dermatitis, vitiligo, and vulgaris, demonstrating a further connection between dermatological diseases and the immune system (46,47,48).

Interestingly, skin microbial changes and loss of physiological immunocompetence are related to some local and systemic diseases such as acne vulgaris, vitiligo, and atopic dermatitis. Many dermatological diseases are due to a loss of crosstalk between cell types leading to an imbalance of pro-inflammatory and anti-inflammatory cytokines (43).

The expressed characteristics of these diseases may be found unattractive by others, contributing to the patient's experience, and affecting sexual confidence. For example, humans and other animals choose their sexual partners at least partially based on their physical characteristics including symmetry, averageness, skin health and color, etc (49). An evolutionary advantage exists in detecting healthy partners for social exchange and mate choice (49). Jones et al. found a positive correlation between facial skin health and the rating of male facial attractiveness (50). The presence of these elements could pose challenges for individuals with skin conditions when seeking emotional and intimate relationships. A comprehensive analysis demonstrated that individuals without a partner faced greater obstacles in terms of sexual satisfaction and mental well-being (51). Moreover, adolescents with higher levels of sexual satisfaction exhibited lower anxiety levels, while young adults with higher levels of sexual satisfaction showed decreased levels of depression (51).

Treatment

Because there is a spectrum of different sexual dysfunctions, treatment for sexual dysfunction is complex and requires customization to each patient and condition. However, the initial step is to resolve any mental health issues given that the major risk factor for sexual dysfunction is disturbed mental health (52). Cognitive behavioral therapy, mindfulness-based cognitive therapy, medication therapy, sex therapy, and cosmetic therapy may be used as treatment options by patients (52). Cognitive behavioral therapy (CBT) is an approach that prioritizes addressing current issues and seeking practical solutions (53). It places significant emphasis on effectively managing and coping with the issues individuals are currently facing (53). Mindfulness can be defined as the conscious awareness that arises when deliberately and nonjudgmentally directing attention to the present moment, allowing for a moment-to-moment observation of the unfolding experience (56). Both cognitive behavioral therapy (CBT) and mindfulness-based cognitive therapy (MBCT) have demonstrated effectiveness in addressing depression and anxiety disorders, and they form essential components in the treatment of arousal and desire-related sexual dysfunctions in women (53). Cognitive therapy has also been shown to be beneficial in other conditions such as chronic pain (54). A recent study of middle-aged women with sexual problems reported the patients considered behavioral and psychological treatments more beneficial than medicine for sexual concerns (55). Cognitive behavioral therapy has traditionally been the primary approach for addressing women's issues related to low sexual desire and arousal (57). The 2015 International Consultation on Sexual Medicine endorsed its use and classified the evidence of its effectiveness as moderate, citing several small studies but emphasizing the need for further research (57). Sex therapy involves exercises of progressive practices where each partner gives and receives sensual touches, caresses, and kisses (58). Patients experiencing sexual dysfunction may also benefit from adjunct of medical therapies such as vaginal dehydroepiandrosterone. Vaginal dehydroepiandrosterone has improved sexual functioning in terms of easier orgasm

and increased sexual desire without increasing levels of hormones (59).

Because a patient's perception of their own appearance affects their desire and sexual function (60), patients experiencing sexual dysfunction related to body image (61) and appearance satisfaction (62) may benefit from cosmetic treatment. This concept can be seen in a study that found increased sexual function in obese patients following a weight loss surgery (63). Although the study was not dermatologically focused, current recommendations suggest improving body image in treating sexual dysfunction (64). Also, a meta-analysis of South Korean subjects showed that cosmetic treatments helped to increase self-esteem (65). This increased self-esteem may be the improvement in body image and appearance satisfaction that a patient needs to overcome their sexual dysfunction.

Conclusion

The skin affects how physical and psychosocial factors interact, how we are perceived by others, and can have adverse effects on health (1,2,3,66). Acne inversa, atopic dermatitis, neurodermatitis, psoriasis, urticaria, and vitiligo have varying pathologies and characteristics, but all have a prevalence of sexual dysfunction. The variations in distribution, signs, and symptoms are linked in their emotional and psychosocial effect on the patient. Emotional stigma and visual discomfort are experienced in patients with these dermatological diseases (6).

Patients treated with dermatological drugs including retinoids, and 5-alpha-reductase inhibitors also experience sexual dysfunction. Exposure to these dermatological drugs and diseases puts these patients at an increased risk for sexual dysfunction. Physicians should treat sexual dysfunction in patients with dermatologic conditions by addressing all involved factors: managing medication side-effects, helping the patient to control the appearance of their skin (even by referring for cosmetic treatment), and helping the patient manage their emotional status and self-perception. Further research should aim to expand on the mechanism that connects the skin to the psyche and dive deeper into other quality-of-life alterations these diseases and drugs contribute to.

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