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Psychosomatic factors in pruritus

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Abstract

Pruritus and psyche are intricately and reciprocally related, with psychophysiological evidence and psychopathological explanations helping us to understand their complex association. Their interaction may be conceptualized and classified into 3 groups: pruritic diseases with psychiatric sequelae, pruritic diseases aggravated by psychosocial factors, and psychiatric disorders causing pruritus. Management of chronic pruritus is directed at treating the underlying causes and adopting a multidisciplinary approach to address the dermatologic, somatosensory, cognitive, and emotional aspects. Pharmcotherapeutic agents that are useful for chronic pruritus with comorbid depression and/or anxiety comprise selective serotonin reuptake inhibitors, mirtazapine, tricyclic antidepressants (amitriptyline and doxepin), and anticonvulsants (gabapentin, pregabalin); the role of neurokinin receptor-1 antagonists awaits verification. Antipsychotics are required for treating itch and formication associated with schizophrenia and delusion of parasitosis (including Morgellons disease).

Introduction

Just as the eyes are the windows to our soul, the skin is a surface reflection of the inner depths of our mind. The skin and the brain are polar terminal differentiations from the same embryonic neuroectoderm, and pruritus is a symptom that demonstrates the complex yet intricate link between these 2 organs. To illustrate this point, itch can be induced simply by thinking about it.[1] In pruritic skin diseases, such as atopic dermatitis and psoriasis, the severity of the diseases do not adequately account for the intensity of itch reported by patients, and psychological factors have often been attributed to being responsible for the perception of pruritus.[2–4] It is important to manage pruritus and the associated psychosomatic factors involved, as these directly affect the morbidity of skin diseases and even the outcome of treatment.

Psychophysiology of pruritus

Evidence of the effect of psyche on itch was provided in a number of studies. Dark et al[5] showed that release of histamine can be achieved by classic conditioning methods in guinea pigs and this effect can be enhanced by administration of stress. In humans, psychosomatic status and psychosocial factors were observed to be good predictors of histamine-induced itch and flare.[6] When patients with atopic dermatitis were purposely informed before their

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histamine prick test that histamine-induced itch is uncontrollable and unpredictable, 90% of them had increased itch and/or increased urticaria.[7] In addition, the anticipation of developing itch already caused the subjects to scratch. We have also recently found that patients with atopic dermatitis experienced more intense itch when they were shown video recordings of other people scratching.[8] Neurotransmitters in the brain, such as acetylcholine[9] and endogenous opioids,[10] are probably involved in this phenomenon.

It has been shown that the reactivity of the hypothalamus-pituitary-adrenal (HPA) axis in response to stress, which could be essential in avoiding immune overreactivity,[11] is impaired in patients with atopic dermatitis and may be linked to the severity of allergic inflammation.[12–14] Chronic stress has also been found to be associated with impairment of HPA response and low cortisol levels.[15] Chronic stress in atopic dermatitis, of which pruritus is a major factor, can perpetuate the neuroendocrine dysfunction initiated by allergic inflammation and lead to aggravation of disease, forming a vicious cycle.

In recent years, the areas of the brain activated by itch have been elucidated. The cingulate cortex, in particular, appears to be an important area in the brain involved in the processing of itch. Compared with controls, the cingulate cortex was found to be significantly activated in patients with atopic dermatitis after histamine was administered and the activation correlated with disease severity.[16] The cingulate cortex was also found to be deactivated after scratching in healthy subjects.[17] The anterior cingulate cortex has been known to be involved in modulation of emotional and cognitive activities (such as reward anticipation),[18] and it may provide a physiological basis on how mood and motivation can affect the perception and processing of itch.

Psychological aspects of pruritus

“Pleasurable pain” is an oxymoron that can used to describe the process of scratching an itch, and it illustrates the complexity of cerebral processing of pruritus and scratching. Many patients with chronic pruritus experience scratching as an automatic response to the sensation of itch. Often, their attention is focused on the itch, and this leads to increased perception of pruritus and intensification of suffering.[19] Scratching provides immediate relief of discomfort and may perhaps serve to reduce inner tension, and this negative reinforcement leads to conditioned scratching. A vicious cycle of itch-and-scratch eventually results; this situation can be perceived as a loss of control and helplessness, and it is often accompanied by a sense of despondency and guilt.[19]

To help understand why psychological conflicts may be translated into skin symptoms such as itch, the concepts of Ego-skin (*Moi-peau*)[20] and somatoform dissociation[21] can be useful. Freud observed that ego was rooted in the body, especially the skin, during early development.[22] The skin is an important organ of communication during early childhood, and bodily sensations and experiences form the core around which ego develops. Ego remains partly identified to the skin even as the person becomes an adult, and disruption of the normally integrated state of ego results in symptoms referred to the skin.

Probably, neither psychogenic nor organic pruritus exists in a pure form,[23] and both are always in coexistence. The interaction between chronic pruritus and psyche is complex but may be conceptualized and classified into 3 groups (Table 1):

- pruritic diseases with psychiatric sequelae,
- pruritic diseases aggravated by psychosocial factors,
- psychiatric disorders causing pruritus.

Pruritic diseases with psychiatric sequelae

Somatic chronic pruritic conditions can have dermatologic, systemic, and neurologic causes, and these conditions are detailed in Table 1. Pruritus can be a distressing symptom and in a prolonged state, it can have a profound impact on the mental and physical well-being. The main psychiatric sequelae secondary to chronic pruritus are anxiety and depressive disorders.

Impact of chronic pruritus on psyche

Significantly more patients with idiopathic generalized pruritus were found to have symptoms of depression compared with controls.[24] In patients with atopic dermatitis, there is a significantly higher level of suicidal ideation, anxiety, and depression,[25] and increased disease severity was found to predict stress and depression a day later.[26] In a study on the impact of itch in psoriasis, most patients rated itch as the most important, most severe, and most troublesome symptom and reported that their itch caused anxiety and embarrassment, as well as affected daily activities (such as concentration, sleep, and ability to attend work or school).[27] A study on dermatology inpatients with itch as the main symptom revealed that 70% of the 109 patients have up to 6 psychiatric or psychosomatic diagnoses and psychiatric or psychotherapeutic treatment was indicated in 62% of all patients.[28] Another study on dermatology outpatients revealed that one-third of the patients with pruritus have comorbid psychiatric disorders,and this prevalence is also high in pruritic skin diseases such as urticaria.[29]

Impact of chronic pruritus on well-being and quality of life

The negative impact of itch on patients' psychology and quality of life has been demonstrated in numerous studies of various diseases. Itch intensity was shown to correlate negatively with sleep, quality of life, and coping behavior in children with atopic dermatitis.[4,30,31] In patients with psoriasis, the intensity of pruritus correlated with a lower quality of life, feelings of stigmatization, stress, and depressive symptoms.[32,33] In another study on patients with psoriasis, pruritus was reported to affect mood in 60%, sleep in 35%, sexual desire in 21%, and appetite in 11% of the patients.[34] Pruritus was also found to be associated with worse physical functioning and mental health in patients with systemic sclerosis.[35]

Pruritic conditions aggravated by psychosocial factors

A number of chronic pruritic diseases are known to be aggravated by psychosocial factors (Table 1). In general, these diseases have multifactorial origins and they themselves result in significant psychosocial consequences.

Effect of psychological factors on pruritus

Certain personality traits have been suggested to be associated with the development or exacerbations of skin disorders.[36–39] A study found that patients with lichen simplex chronicus had characteristics toward a greater tendency for pain avoidance and dependency on other peoples' desires, and they were more conforming and dutiful compared with controls[40]; however, personality traits are influenced by and can be the result of skin diseases, and no specific personality type could so far be consistently demonstrated in patients with skin diseases.[19,41]

Anxiety and depression, on the other hand, have been repeatedly shown to be associated with chronic pruritic skin diseases.[42–44] They are both aggravating factors and consequences of pruritus and scratching. The severity of atopic dermatitis correlated with increased

anxiety levels in children[45] and an increased ease of conditioning patients with atopic dermatitis to scratch have been attributed to their higher levels of anxiety.[46,47] Depression has also been found to correlate with itch intensity in atopic dermatitis, psoriasis, and chronic idiopathic urticaria.[48,49]

In addition to affecting the perception of pruritus and disease severity, anxiety and depression affect illness cognition and coping mechanisms, which in turn affect disease and treatment outcome. In chronic diseases, patients with more negative affect were more prone to adopting dysfunctional illness representations and coping behaviors, such as helplessness and passive coping, and these have been shown to result in worse adaptive and disease outcomes.[50–52] Pathological worry increased the time needed to clear psoriasis using psoralen-ultraviolet A by 1.8 times.[52]

Idiopathic pruritus involving the genital region is not an uncommon condition. It may be initiated by a somatic disease, but in certain cases, its perpetuation is a manifestation of underlying psychological conflicts, such as fear related to sexually transmitted disease or cancer, and guilt or shame over an issue of sexuality.[53] Persistent anal pruritus, in particular, may be a manifestation of the obsessive nature of a person, expressing in a depressive manner with elements of anxiety.[53,54]

Effect of stress on pruritus

The association between stress and increased severity of pruritic skin diseases has been reported in multiple studies; 37% to 71% of patients with psoriasis reported stress as an exacerbating factor.[55–58] Interpersonal stress was found to predict increased severity of atopic dermatitis a day later.[26] The direct association between stress and itch has also been shown in a number of studies. The presence and severity of pruritus has been found to be associated with the level of psychological stress in the general population.[59–62] An experimental study found that a high level of psychological stress enhanced the subjects' ability to discriminate higher intensities of itch stimuli.[63] Patients with hand dermatoses, who feel that their disease severity is more strongly associated with stress, experienced more itch.[64]

The mechanisms in which stress increased itch sensation are unclear. Besides suppression of the HPA axis, as explained earlier, the release of itch mediators, such as endogenous opioids, in the central nervous system may have a role. Another possible mechanism may be mediated by the autonomic nervous system and its neurotransmitter, acetylcholine (which is known to mediate itch). One study showed that patients with atopic dermatitis had an overactive sympathetic response to itch and scratching. Their parasympathetic tone was persistently and rigidly elevated, representing a lack of adaptability in response to stress.[65]

Effect of social factors on pruritus

Poor social support has been suggested to worsen skin diseases.[66,67] A large population-based cross-sectional study found a strong negative association between social support and the presence and severity of itch.[60] The presence of idiopathic pruritus among psychiatric inpatients was also found to be associated with inadequacy of social support and unemployment.[68] Social support may indirectly affect itch by moderating stress experienced in life,[69] which as mentioned, increases intensity of pruritus and aggravates skin diseases. Having social support also helps the individual emotionally and mitigates the likelihood of developing anxiety and depression; poor social support has been shown to be a predictor of psychological distress in patients with atopic dermatitis and psoriasis.[70]

It is not uncommon to notice people subconsciously scratching their heads when they are asked a difficult question. In the same way, patients with chronic pruritus may scratch more

during socially conflicting situations. In patients with neurodermatitis, underlying conflicts such as strain relationships, humiliation, and performance demands[71] can precipitate and aggravate scratching when such psychological tensions were unable to be expressed directly. Scratching provides immediate relief of an unpleasant sensation and may be a portal for reduction of inner tension.

In pruritus associated with advanced aging, the exact pathogenesis is unknown but is likely multifactorial and not caused by xerosis of the skin alone. It is also likely that a number of these cases are aggravated by or a consequence of social isolation, loss of bonding relations, and the feeling of emptiness.

Psychogenic disorders causing pruritus

Itch in patients with psychiatric diseases (Table 1) is not uncommon. Among psychiatric inpatients, idiopathic itch was found to affect 36% to 42% of the patients and was more frequent in those who exhibited anger-trait, angry temperament, and ruminative catastrophization.[68,72] It should be noted that many antidepressants can effectively treat pruritus, and the true prevalence of pruritus in psychiatric patients may be even higher. A trend toward a lower prevalence of idiopathic pruritus was also observed in patients treated with tricyclic antidepressants compared with those on other antidepressants. In patients with chronic itch associated with psychiatric diseases who visited a dermatology department, itch was found to affect the scalp and face more often.[73] Pruritus of the face was also found to be significantly more common in patients with psychiatric diseases compared with those without.[73]

From another perspective, in a study on patients with psychogenic pruritus (consisting of lichen simplex chronicus, neurotic excoriation, prurigo nodularis, and pruritus that is intermittent, short-term, severe, and without physical signs), all patients were found to have affective disorders (depressions, anxieties, and mixed anxiety and depressive disorders) and 18% (12/65) also had associated personality disorders.[74]

Somatoform pruritus and functional itch disorder

Somatoform disorders include conditions of which symptoms suggest a medical condition but no organic causes can be found. Somatization disorder is subcategorized under somatoform disorders in the Diagnostic and Statistical Manual IV (DSM-IV) and the typical history is that of physical complaints over several years with onset before 30 years of age. To qualify for the diagnosis of somatization disorder, these symptoms must have caused significant impairment in function or have resulted in medical treatment. The disorder may be monosymptomatic (consisting of only itching) or polysymptomatic (itching accompanied by other complaints with no organic cause). One study reports that 6.5% of outpatients at a clinic specializing in psychodermatology suffered from “somatoform pruritus” (using a definition close to those in DSM-IV).[75]

The French Psychodermatology Group proposed using the term “functional itch disorder” instead of “somatoform pruritus” or “psychogenic pruritus,” and defined this condition as “an itch disorder, where itch is at the centre of the symptomatology, and where psychological factors play an evident role in the triggering intensity, aggravation, or persistence of the pruritus.”[76] The group also proposed a set of diagnostic criteria (Table 2) in which all of the 3 compulsory criteria and at least 3 of the 7 optional ones are to be met. Although psychological factors can increase the perception of any forms of itch, functional itch disorder can occur in addition to other forms of pruritus. These 2 scenarios should be differentiated. Functional itch disorder should also be differentiated from idiopathic pruritus in that the former consists not only of negative features (no somatic cause) but it also has

positive features (clinical characteristics and association with psychological disorders or stressful life events).[77]

Functional itch disorder is related to other functional or somatoform disorders involving other symptoms (such as pain and paresthesia) and organs (such as irritable bowel syndrome). These are grouped under the term “medically unexplained physical symptoms” (MUPS).[21,78] Fibromyalgia is another entity included under MUPS. Anecdotally, we find that many patients with fibromyalgia have ill-defined itch and/or burning sensation over various parts of the body with no secondary causes being found. Although a recent study found that fibromyalgia was present in 70% of patients with chronic urticaria,[79] there was no evidence of a dermatologic cause for the itch in these patients. This itch is likely functional in nature, a similar expression of the underlying psychological processes resulting in fibromyalgia.

Obsessive-compulsive disorder

The key features of obsessive-compulsive disorder include obsessions (persistent, often irrational, and seemingly uncontrollable thoughts), and compulsions (actions used to neutralize the obsessions) that are disruptive to daily functioning.[80] A common scenario is a patient washing his or her hands excessively because of persistent intrusive thoughts that the hands are dirty or infected. Washing the hands each time allows temporary relief from the thoughts, but the frequent washing eventually leads to pruritus, irritant contact dermatitis, and decreased functional ability.

Factitious dermatitis

Factitious disorder is characterized by the intentional production of symptoms or signs in order to assume the “sick role.” These patients may not necessarily be aware of their motives, but on a subconscious level they wish to be supported, taken care of, or shown pity and being ill is a good solution to relieve their emotional stress.[81] Along with the dermatitis that was created intentionally, pruritus is a common symptom and its severity is often exaggerated. An associated psychiatric disorder is often found in factitious dermatitis.[82–84]

Impulse control disorder

Impulse control disorders are characterized by the failure or extreme difficulty in controlling sudden urges to perform certain activities despite the negative consequences.[80] Well-known disorders included in this category are trichotillomania, pathological gambling, and kleptomania. Neurotic excoriations and a subgroup of prurigo nodularis may be a form of impulse control disorder. The itching sensation may start in one area of the body, acutely spreads, and becomes generalized. These patients are aware that their excessive scratching is damaging their skin and may admit to doing so; however, they are not able to stop scratching.

Psychoses

Patients with certain psychotic disorders may present to the dermatologist with the complaint of itch involving various parts of the body. In schizophrenia, tactile hallucinations can occur and these may present as feelings of being touched, burning or tingling sensations, or itch.[85]

A more common psychotic condition presenting with itch is delusion of parasitosis. Patients with this condition experience formication (from the Latin word *formica*, meaning "ant" a sensation of insects crawling on or under the skin[86]) and have a firm unshakable belief that parasites have infested their skin. Delusion of parasitosis is a form of monosymptomatic hypochondrial psychosis, and patients are coherent otherwise. It is usually the sole

psychiatric disturbance, but it may also occur in association with other psychiatric or medical disorders[87] or is induced by medication.[88] Patients frequently complain about itch and scratch and dig into their skin in an attempt to remove the insects, in addition to the classic "matchbox sign,"[89] in which patients offer bits of skin and fabric in small containers as evidence of parasites. The sensation of intranasal formication is another sign of the disease.[90] Formication is not specific for delusion of parasitosis; organic causes such as brain injury, drug abuse involving cocaine[91] and amphetamines,[92] and withdrawal of these illicit drugs and alcohol should be considered.

Since 2002, there have been an increasing number of people complaining about their skin being infected by unverifiable fibers and filaments. In addition, they tend to have numerous associated nonspecific symptoms, such as arthralgias, fatigue, and altered cognitive function.[93] This entity is known as "Morgellons disease" by patients themselves. The current consensus is that this disease is a new manifestation and variant of delusional infestation with 'infection' by an inanimate material.[94,95]

Breaking the news

Telling patients that their itch is psychological requires much prudence and tact. Take the example of prurigo nodularis in a patient with a background of emotional conflicts—the physician can focus the patient's attention on nerve hypersensitivity in the skin instead of emphasizing his or her frequent picking or anxiety and depression. This avoids the patient feeling blamed and puts the patient on the same side as the doctor, motivating him or her to work toward resolving the lesions with the doctor. Such an approach is by itself a "psychological anxiolytic" it avoids causing the patient guilt and serves to distract the patient from the itch sensation.

A problem with prescribing antidepressants is that patients can easily find out the psychiatric indications of these medications and may subsequently discontinue treatment. For pruritus associated with mild anxiety or depression, gabapentin and pregabalin may be prescribed instead of the typical antidepressants (see later in this presentation and in Table 3).

Management of psychosomatic factors

Management of chronic pruritus, in particular cases with a psychogenic component, is directed at treating the underlying causes and adopting a holistic approach to address not only the dermatologic and somatosensory aspects, but also the cognitive, and emotional components. An integrated multidisciplinary team consisting of dermatologist, psychiatrist, psychologist, nurse educator, and social worker would be required to adequately address the multifaceted aspects of pruritus.

Dermatologic aspects

Anti-inflammatory agents consisting of steroids and calcineurin inhibitors are useful, if there is a primary or secondary inflammatory component. For widespread lesions, phototherapy may be a more practical form of treatment. Repetitive scratching leads to damage of the epidermis, and moisturizers will be helpful in repairing the skin barrier. In addition, emphasizing the application of moisturizers diverts the patient's attention away from the itch (thereby reducing perception and intensity) and provides a degree of behavioral substitute for scratching. A number of commercially available moisturizers that have antipruritic agents added to them would be beneficial in cases where there is also a dermatologic origin for the pruritus. These topical antipruritic agents consist of menthol, anesthetic agents, capsaicin, and N-palmitoylethanolamine. The use of menthol is particularly useful in

patients who report relief of pruritus with cold water or ice. The cooling sensation it elicits also provide a psychological feedback that “the cream is working.”

In localized chronic pruritic lesions, such as prurigo nodularis and lichen simplex chronicus, occluding the lesions following application of topical agents is likely to result in better cure rates than application of topical agents alone. Occlusion not only increases the effect of the topical agent and protects the lesions from further trauma, more importantly it also makes accessing the lesions inconvenient, thereby reducing the pleasure derived from the process of scratching (which is the main motivation behind the itch-scratch cycle).[96]

Psychological management

Patients’ psychological capability to control the itch-scratch process can be enhanced with education, support, and behavior therapies.[97–100] Patient education involves improving patients’ understanding of their disease, identification and avoidance of triggering factors, and teaching itch-relieving interventions and the use of medications. Support is provided in the form of individual and group counseling, enrolling in support groups and referring to social services for assistance required. Behavior therapies include awareness training and habit reversal, and relaxation training, such as deep breathing and progressive muscle relaxation.

Patients with psychosis are best managed by psychiatrists; however, most patients do not want to see a psychiatrist; after all, they came to and want to see a dermatologist. The setting of a multidisciplinary clinic will be very beneficial in such cases to avoid the stigma of being labeled “psychiatric” and to facilitate comanagement. Antipsychotics are required, with those used for delusion of parasitosis (including Morgellons disease) consisting of pimozide, risperidone, olanzapine, quetiapine, and more recently, aripiprazole.[101]

Management of the somato-affective aspects of pruritus

Establishment of a good rapport and alliance between the therapist and patient is important, as this in itself provides emotional support. Psychotherapeutic approaches for emotional problems include psychoanalysis, psychodynamic therapy, guided affective imagery,[102] and hypnosis.[103]

Various pharmacotherapeutic agents used for depression and anxiety have been shown to be effective antipruritic medications (Table 3). Medications that can be used to treat pruritus with comorbid depression and/or anxiety include selective serotonin reuptake inhibitors (SSRIs), noradrenergic selective serotoninergic antidepressant (NaSSA) and tricyclic antidepressants (TCAs).

Mirtazapine is the only NaSSA that has been used as an antidepressant, anxiolytic, and antipruritic agent. Esmirtazapine, the (*S*)-(+)-enantiomer of mirtazapine, which has a shorter half-life, is currently under development for the treatment of insomnia and it is a promising alternative for patients with prolonged drowsiness from mirtazapine. The SSRI antidepressants and anxiolytics that have been used to treat pruritus consist of paroxetine, sertraline, fluvoxamine, and fluoxetine. The use of TCAs, namely amitriptyline and doxepin, in psychiatry is limited nowadays in view of the better efficacy and safety profile of the SSRIs.[104] Of note, all the previously mentioned psychotherapeutic medications have a period of “therapeutic lag” of as long as 2 to 4 weeks before their effect is evident.

Gabapentin, a structural analog of the neurotransmitter γ-aminobutyric acid, has been shown to be effective for prurigo nodularis,[105,106] neuropathic itch, and uremic pruritus. Pregabalin is a compound similar to gabapentin and both these medications may have antidepressant and anxiolytic effects[107,108] in addition to their antipruritic effects. These 2

medications have also been shown to be effective for fibromyalgia[109] and therefore would be appropriate for patients with functional itch associated with fibromyalgia.

Aprepitant, a neurokinin receptor (NKR)-1 antagonist that has been used as an antiemetic, was recently reported to be effective for chronic refractory pruritus in a case series.[106] NKR-1 is a receptor for substance P, an important itch mediator.[110–113] NKR-1 antagonists were found to also have effects in modulating mood disorders: vestipitant is under development as a potential anxiolytic and possibly antidepressant agent,[114] and L-733,060 (Merck Sharp & Dohme, New Jersey, United States) was shown to have antidepressant[115,116] and anxiolytic[117] effects in animal studies. Aprepitant, though, was found not to be efficacious in treating major depressive disorder in clinical trials[118] and plans to market it as an antidepressant have since been abandoned. Studies will be required to determine the usefulness of NKR-1 antagonists in the treatment of pruritic disorders with associated anxiety and/or depression.

Conclusions

In the brain, pruritus and psyche are intertwined in a complex manner, and the effect of one affects the other. In addition to the dermatologic and somatosensory aspects of pruritus, the cognitive and emotional components must be evaluated and addressed to effectively manage chronic pruritus.

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Table 1

Interaction between pruritus and psyche

1. Pruritic diseases with psychiatric sequalae
   - **a.** Chronic pruritic skin conditions
     - **i.** Endogenous eczema
     - **ii.** Prurigo nodularis and lichen simplex chronicus
     - **iii.** Psoriasis
     - **iv.** Rarer conditions but with significant itch
       - Dermatitis herpetiformis
       - Darier's disease
       - Epidermolysis bullosa pruriginosa
   - **b.** Systemic diseases with pruritus
     - **i.** Metabolic disorders
       - Uremic pruritus
       - Chronic liver disease
     - **ii.** Endocrine
       - Hyperthyroidism
       - Perimenopausal pruritus
     - **iii.** Infection
       - Human immunodeficiency virus–associated pruritus
       - Parasitoses, eg, onchocerciasis
     - **iv.** Malignancies
       - Hematological
         - **a.** lymphoma and leukemia
         - **b.** polycythemia rubra vera
       - Solid tumors
     - **v.** Drug associated
   - **c.** Neurological itch
     - **i.** Central nervous system
       - Stroke
       - Neoplasms
       - Multiple sclerosis
     - **ii.** Peripheral neuropathy
       - Postherpetic neuropathic itch
       - Brachioradial pruritus
       - Notalgia paresthica
2. Pruritic conditions aggravated by psychosocial factors
   - **a.** Endogenous eczema
   - **b.** Prurigo nodularis and lichen simplex chronicus
   - **c.** Psoriasis
   - **d.** Chronic urticaria
   - **e.** Pruritus involving the genital regions
   - **f.** Pruritus of advanced aging

3 Psychogenic disorders causing pruritus

- **a.** Neuroses
  - **i.** Somatoform dissociation with pruritus/Functional itch disorder
  - **ii.** Obsessive-compulsive disorders
  - **iii.** Factitious dermatitis
  - **iv.** Impulse control disorder
    - ■ Neurotic excoriation and a subgroup of prurigo nodularis
- **b.** Psychoses
  - **i.** Delusion of parasitosis
  - **ii.** Schizophrenia with tactile hallucination

Table 2

Diagnostic criteria for functional itch disorder (psychogenic pruritus) proposed by the French psychodermatology group[75]

3 compulsory criteria:

- Localized or generalized pruritus sine materia (without primary skin lesion)
- Chronic pruritus (more than 6 weeks)
- No somatic cause

3 of 7 optional criteria:

- A chronological relationship of pruritus with one or several life events that could have psychological repercussions
- Variations in intensity associated with stress
- Nocturnal variations
- Predominance during rest or inaction
- Associated psychological disorder
- Pruritus that could be improved by psychotropic drugs
- Pruritus that could be improved by psychotherapies

Table 3

Antipruritic agents with antidepressant and anxiolytic effects

Agent class	Dosing	Antipruritic indications
Selective serotonin reuptake inhibitors	Paroxetine	Pruritus associated with malignancies
	20 mg daily	
	Sertraline	Pruritus associated with malignancies
	75–100 mg daily	Cholestatic pruritus
		Drug-induced pruritus
Noradrenergic and specific serotonergic antidepressant	Mirtazapine	Severe nocturnal pruritus
	15–45 mg daily	Pruritus associated with malignancies
Anticonvulsants	Gabapentin	Neuropathic itch
	300 mg daily and titrating to effect up to	Uremic pruritus
	3600 mg daily over 3–4 weeks	Multiple sclerosis–induced itch
	Pregabalin	Neuropathic itch
	Initially 50–75 mg daily, increasing to maximum of 300 mg daily in divided doses after 1 week	Aquagenic pruritus