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Itch Management in the Elderly

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Abstract

Itch is a common symptom in the elderly population over 65 years old, and is often a chronic condition lasting more than 6 weeks. As in all age groups, but especially in the elderly, there can be a significant effect on the general health status and quality of life, with impaired daily activities and lack of sleep, which can also lead in some cases to depression or anxiety. The cause of chronic itch in the elderly is often multifactorial due to physiological changes in the aging skin, including impaired skin barrier function, and also due to decline in immunological (immunosenescence), neurological, and psychological changes associated with age. Common causes of chronic pruritus in the aging skin include xerosis (dry skin), dermatological disorders (eczema, psoriasis, lichen planus), and systemic (renal, hepatic, endocrine), neurodegenerative, and psychological diseases. Comorbidities in the elderly population lead to polypharmacy, increasing the potential risk of drug side effects, which can result in causing or exacerbating itch in the elderly patient. It is essential to obtain a detailed history, including drugs, as well as a thorough clinical examination with appropriate subsequent investigations. Management of the elderly patient with chronic pruritus should include treatment with topical therapies such as emollients as well as other agents for symptomatic relief. Systemic therapies should be directed at any underlying cutaneous or systemic diseases. Often the cause of itch in the elderly cannot be found and some systemic treatments can be used for symptomatic control of the itch, including antihistamines, gabapentin, and selective antidepressants. A holistic approach needs to be taken on an individual basis to relieve chronic pruritus, as the management of itch in the elderly can be a challenge.

The clinical management of itch in the elderly can be complicated due to multiple considerations, which must be taken into account as a result of the aging process. This chapter reviews and summarises the management of itch in the elderly, defined as patients over 65 years of age. More detailed aspects of itch pathophysiology and management in other specific conditions have been discussed elsewhere in this book. In the older population, therapies should be aimed at both cutaneous and central mechanisms, and, as in all age groups, there is no standard or universal recommendation [1]. The management of itch must be

Table 1. Investigation of common causes of itching [39]

History Establish history of pruritus or rash, identify associated systemic disorders, past medical history including psychiatric disorders, drug history, allergies, family history; itch may occur without a rash
Examination There may be evidence of skin disease, or signs of systemic disorders should be looked for; examine all areas – finger webs (scabies), scalp (lice/fungal infection), and mucosae; look for evidence of urticaria (wheals), symptomatic dermographism, cholinergic urticaria (small inducible papules), and cold urticaria (ice cube test), which should be tested for when suggested by the history
Baseline investigations Full blood count, erythrocyte sedimentation rate, iron, serum ferritin, renal function, liver function, thyroid function, blood glucose, chest X-ray
Other investigations where appropriate Calcium, serum electrophoresis and urine test, stool for ova, cysts and parasites, HIV testing, hepatitis B, hepatitis C, cancer screening, serum C-reactive protein, autoantibodies, antinuclear factor
Diagnostic investigation Skin biopsy, histopathology and consider direct immunofluorescence
Questionnaire assessment Visual analogue scales, quality-of-life measurements

tailored to the individual and the aetiology of itch if known, whether it is dermatological, systemic, neurological, or psychological. Chronic pruritus, defined as itch lasting more than 6 weeks, is a common symptom in the elderly [2]. The prevalence of chronic pruritus has been estimated to be 12% in patients over 65 years of age and almost 20% in patients over 85 years of age [3]. Xerosis is an uncomfortable and often distressing condition that is common in the elderly with symptoms including itching, dryness, and scaling of the skin, along with cracks or fissures [4]. More than 50% of people aged 65 years and over are affected by xerotic eruptions since the rate of repair and function of the epidermal water barrier declines with age [5].

Itch is often a debilitating symptom with a significant impact on quality of life, impairing daily activities and sleep especially in the elderly. The pathophysiology of chronic itch in the elderly may be multifactorial due to physiological changes in the skin, which occur with age, including impaired barrier function, immunological decline (immunosenescence), and neurodegenerative changes [6]. Chronic itch, especially in the elderly, is frequently a symptom of xerosis (dry skin), which can be caused by atrophy of the skin barrier and diminished hydration. Other common causes in the older population also include dermatoses, such as eczema, psoriasis, lichen planus, urticaria, and bullous pemphigoid. Underlying systemic diseases include renal, hepatic, and endocrine disorders as well as neurological and psychological disorders [7–9]. Elderly patients often have comorbidities, which may require polypharmacy [10]. The metabolism and pharmacokinetics of these drugs may also be altered in the elderly, leading to increased side effects causing or exacerbating the itch. Specific to the elderly population, itch can be caused by thiazides (hydrochlorothiazide) and calcium channel blockers [11]. In the elderly, itch frequently presents without a rash or identifiable cause, thus requiring topical and systemic therapies for symptomatic relief.

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General Management of Itch in the Elderly

With general principles of itch management discussed in the chapter by Misery [this vol., pp. 35–39], there are particular considerations for the elderly population. It is important to obtain a detailed history including medications and a thorough clinical examination, directing the clinician to investigate with the most appropriate tests (table 1). Cutaneous and systemic causes of itch should be identified (table 2) and treated accordingly, keeping in mind that neuropathic and psychogenic disorders are also more frequent in the elderly [9]. If one potential cause for pruritus is found early on, a full evaluation should nevertheless be completed since the cause of itch in the elderly is regularly multifactorial. Topical (table 3) and systemic therapies (table 4) should be directed at symptomatic relief. Cutaneous diseases associated with chronic pruritus are often more prevalent in the aging population, such as dry skin and dermatitis, especially in patients with dementia and other neurological diseases. Scabies is frequently acquired by elderly people in long-term care homes, and is suggested by itching and skin lesions in the finger webs, wrists, genitals, and soles of the feet [12]. Systemic diseases in the elderly frequently include chronic renal, liver, and endocrine diseases, including thyroid disorders. Iron and vitamin deficiencies are also common in the elderly. Medications often prescribed for elderly patients are also likely to contribute to pruritus, including non-steroidal anti-inflammatory drugs, as well as codeine products (opioid analgesics) and antihypertensives. Polypharmacy in the elderly presents particular challenges, as the pathophysiology of drug-induced pruritus may be multifactorial and clinical presentation varies widely [13]. It can occur on the first dose or after years of being on a particular regimen. If the pruritus is drug induced, symptoms may persist even after cessation of the suspected medication [14]. All elderly patients with pruritus should have their drug regime reviewed. Elderly patients are also more likely to present with chronic pruritus as a manifestation of underlying malignancy, including myelodysplastic disorders, which may require further investigations. Older patients with chronic pruritus that has commenced within the past 6 months should be examined and tested for cancers associated with itch. There may be several triggers of chronic pruritus in cancer patients, including xerosis and psychogenic causes, as well as the effect of the underlying disease. Therefore, they may need combined topical and systemic therapies agents such as selective se-

Table 2. Classification and common causes of pruritus [39]

Dermatological
Most inflammatory dermatoses
Atopic dermatitis, lichen simplex, lichen planus, urticaria, drug hypersensitivity, scabies, xerosis, mycosis fungoides
Systemic
Hepatic
Primary biliary cirrhosis, biliary obstruction, cholestasis during pregnancy, hepatitis B and C
Renal
Chronic renal failure, dialysis
Endocrine
Hypothyroidism
Malignancies
Lymphoma, myeloma, central nervous system, tumours
Haematological
Polycythaemia rubra vera, para-proteinaemia, iron deficiency
Neurological
Multiple sclerosis, brachioradial pruritus, notalgia paresthetica, post-herpetic neuralgia
Psychogenic/psychosomatic
Parasitophobia
Mixed
Co-existence of different diseases
Other
Pruritus of undetermined origin

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Table 3. Common topical treatments for pruritus [1]

Agent	Indications	Major adverse effects
Coolants: menthol, camphor, phenol	Most pruritic conditions	Skin irritation
Capsaicin 0.025–0.1%	Neuropathic itch Prurigo nodularis Aquagenic pruritus Uraemic pruritus	Initial burning sensation
Anaesthetics	Neuropathic itch	Numbness
Calcineurin inhibitors	Eczema (various types) and anogenital pruritus	Transient burning sensation
N-palmitoylethanolamine	Atopic dermatitis, dry skin	Skin irritation
Doxepin	Atopic dermatitis Localized pruritus	Drowsiness in 25% of patients Allergic contact dermatitis
Aspirin and salicylates	Lichen simplex chronicus	Transient burning sensation

rotonin reuptake inhibitors which may also be effective [15] in symptomatic control of the itch.

In the general management of pruritus, the distinct limitations of old age mean that, once decided upon, therapy must be carefully planned and facilitated. Polypharmacy and the possibility of drug interactions are extremely important factors to take into account when proposing treatments, but considerations must also be given to the challenges of mobility that face older people. For example, bath oils and moisturisers may increase the risk of falls, or may be difficult to apply to certain areas. The application of emollient may present difficulties in older patients, especially those with arthritis. They may require the assistance of a carer or partner, or instead use devices, such as body creamers or sticks, available to help moisturize body parts that are hard to reach. Packaging should also be easy to open and contents easy to extract. Also problematic is possibly impaired cognitive function in the elderly which can affect compliance with advice. In these cases, caregivers should be aware of the treatment plan. Frequently, the use of soap may be ingrained an older person's cleansing regime, and might prove difficult to relinquish. It is important to acknowledge the concern of an elderly patient who claims not to feel clean if they have not used soap, and emphasize that emollient will also cleanse the skin without drying it. If there is anxiety about bacteria remaining on the skin, then an antimicrobial emollient with chlorhexidine may be prescribed as a soap or shower gel substitute. Patient education has an important place and has been shown in the general population to significantly reduce the frequency and intensity of itching and scratching [16]. Older people and their carers should be taught about the itch-scratch cycle, and how it may be interrupted by simple measures, such as keeping fingernails short and wearing loose clothing.

Since xerosis is the most common cause of pruritus in the elderly, it is important to educate patients upon how to manage this condition effectively. The focus must be twofold: healing the damage already within the stratum corneum and preventing further skin barrier deterioration [11]. Patients should bathe in tepid water, use cleanser that is non-irritating, and avoid high pH soaps or those containing alcohol. Instead, acidic pH

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Table 4. Current systemic therapies for pruritus [1]

Medication class	Medication and dosages	Main indication	Major side effect
Anti-histamines	1st generation: usually only given at night due to their sedative effect Hydroxyzine Adults: 30–100 mg/day in 3 divided doses	Nocturnal itch	Sedation
	Diphenhydramine Adults: 25–50 mg b.d.		
	Chlorpheniramine maleate Adults: 4 mg 6–8 h		
	2nd generation: Loratadine Adults and children ≥12 years: 10 mg q.d.	Urticaria Mastocytosis Insect bite reactions	Infrequent: Drowsiness Dry mouth
	Cetirizine Adults and children ≥6 years: 10 mg q.d. or 5 mg b.d. Renal or hepatic insufficiency: reduce dosages by half		
	Fexofenadine Adults and children ≥12 years: 60 mg b.d. or 180 mg q.d. Renal impairment: consider lower dose of 60 mg q.d.		
Anti-convulsants	Gabapentin 300–3,600 mg/day in 3 divided doses Reduced dose in renal impairment In dialysis patients, 100–300 mg after each dialysis	Neuropathic itch Uraemic pruritus Prurigo nodularis Post-burn pruritus	Drowsiness Leg swelling Blurred vision Constipation Ataxia
	Pregabalin 150–450 mg/day in 2–3 divided doses Dose reduction in renal impairment		
μ-Opioid receptor antagonists	Naltrexone 25–50 mg o.m.	Pruritus associated with cholestasis, atopic dermatitis, chronic urticaria	Nausea and vomiting Insomnia Reversal of opioid analgesia Hepatotoxicity rarely
κ-Opioid receptor agonists	Butorphanol 1–4 mg intranasally o.n.		Drowsiness Nausia Vomiting
	Nalfurafine 2.5–5 μg o.m.	Uraemic pruritus	Insomnia
Anti-depressants	Mirtazapine 7.5–15 mg o.n. initially, up to 45 mg o.n.	Malignancy-associated pruritus Nocturnal pruritus in atopic dermatitis	Drowsiness Weight gain
	SSRIs Paroxetine 10–40 mg q.d. Sertraline 75–100 mg q.d. Fluvoxamine 25 mg for 3 days, then 50–150 mg q.d.	Consider in pruritus associated with depression and/or anxiety Pruritus associated with haematological malignancies and solid tumours (paroxetine) Cholestatic pruritus (sertraline)	Drowsiness Insomnia Sexual dysfunction
	Tricyclic antidepressants Doxepin 10–100 mg o.n. Amitriptyline 25–75 mg o.n.	Chronic idiopathic urticaria (doxepin) Neuropathic itch (amitriptyline)	Anticholinergic effects: Drowsiness Dry eyes and mouth Blurred vision Urinary retention Cardiovascular effects: Orthostatic hypotension Conduction disturbances

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Table 4 (continued)

Medication class	Medication and dosages	Main indication	Major side effect
Thalidomide	100–200 mg q.d.	Prurigo nodularis Uraemic pruritus Actinic prurigo	Teratogenicity Peripheral neuropathy Drowsiness
Neurokinin 1 receptor antagonist	Apretitant 80 mg q.d.	Itch associated with: Haematological malignancies Solid tumours Biological cancer drugs Prurigo nodularis	Nausea Dizziness
Phototherapy	UVB, broadband and narrowband UVA Combined UVA and UVB PUVA, oral and topical	Atopic dermatitis Psoriasis Uraemic pruritus Cholestatic pruritus	Tanning Increased itch Skin malignancies

SSRIs = Selective serotonin reuptake inhibitors; b.d. = twice daily; q.d. = 4 times a day; o.m. = on morning; o.n.= on night.

products are recommended. Skin should be gently patted dry and moisturiser applied generously immediately afterwards, so that its efficacy in improving barrier function is maximised. Fluctuations in temperature and humidity should be avoided; therefore, air conditioning and dehumidifying units may be helpful. Where xerosis is severe or secondary to underlying medical conditions (HIV, thyroid disease, diabetes), systemic treatments may be necessary [4]. In cases where elderly patients' medications are contributing to dry skin, it may be unviable to discontinue them, unless the xerosis is extremely severe [8]. Where pruritus due to xerosis or other inflammatory dermatoses is refractory, the itch may be reduced with 'soak and smear' hydration techniques [17]. Patients bathe for 10–20 min, apply moisturiser, and then occlude the skin with kitchen cling film (plastic wrap). Particularly frail patients prone to falling may prefer to use wet wraps, where a moist garment is worn and covered with a dry garment following bathing and moisturisation [2].

There is no single therapeutic agent that is consistently successful in treating itch, especially in the elderly patient, where each patient must be considered individually [7]. Management of the itch must be tailored to the individual aetiology whether dermatologic or systemic. Topical and systemic management of itch, discussed in detail in the chapters by Metz and Staubach [this vol., pp. 40–45] and Pongcharoen and Fleischer [this vol., pp. 46–53], will now be reviewed with specific relevance to the elderly population.

Topical Treatments in the Elderly

An emollient may be useful where the pruritus occurs in otherwise healthy elderly people. Topical treatments including emollients (table 3) are the first-line therapy for xerosis, as they help prevent transepidermal water loss and improve skin barrier function [1]. Moisturisers and cleansers with a low pH should be used, and alkaline soaps avoided, so that the secretion of pruritic serine proteases on the skin surface is reduced [18]. For treatment of xerosis, moisturisers should be applied 1–3 times per day and immediately after bathing, while the skin is still wet [19]. Colloidal oatmeal topically applied may be effective at reducing itch responses since oats contain avenanthramides that inhibit the release of inflammatory cytokines [20]. Bathing with oatmeal may also be a useful therapy in elderly patients [11]. Pruritus in the elderly may also be relieved with cooling agents such as menthol with aqueous cream,

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especially in palliative care. This can be useful for short-term alleviation of itch, and its effects can last for up to 70 min. Calamine also has an antipruritic effect, which is attributed to the cooling and anaesthetic effect of the ingredient phenol. Topical calcineurin inhibitors pimecrolimus and tacrolimus are recommended in elderly patients to reduce itch in inflammatory skin conditions. If the symptoms are relieved, then topical calcineurin inhibitors may be used indefinitely [8].

Other preparations that are often helpful in reducing pruritus in the general population are less suitable for use in the elderly and must be used carefully. Lactic acid 12%, neutralised with ammonium hydroxide and pramoxine hydrochloride 1%, has been shown to effectively moisturise and reduce pruritus in dry itchy skin [21], but such high concentrations of lactic acid may irritate inflamed elderly skin with the effect of worsening pruritus, and so its practicality in this population is ambiguous. Topical capsaicin, derived from chilli peppers, exerts an antipruritic effect on chronic localized itch [22]. Elderly sufferers of neuropathic itch may find it beneficial, although the initial burning sensation at the site of application can last for 2 weeks and may lessen compliance. While topical corticosteroids may control itch of inflammatory conditions, prolonged daily treatment should be limited due to local adverse effects [23]. Elderly patients are particularly susceptible to thinning of the skin, and should be monitored closely if using topical steroids long term [11]. Doxepin 5% cream, a topical antihistamine, is not recommended in the elderly due to an increased risk of sensitisation with localised stinging, burning, and drowsiness caused by absorption through the skin [1, 23].

Systemic Treatments in the Elderly

Second-generation non-sedating antihistamines such as fexofenadine, cetirizine, and loratadine may be effective in managing the itch of urticaria [24]. First-generation sedating antihistamines such as hydroxyzine may be useful for nocturnal itch that disturbs sleep, although increased drowsiness may be problematic in the elderly [25]. Oral doxepin, a tricyclic antidepressant with H_1 and H_2 antagonist activity, is an effective antipruritic that is usually well tolerated; however, doxepin has anticholinergic side effects, including confusion, dry mouth, and constipation, which are more pronounced in the elderly with an increased risk of hypotension and hyponatremia, and therefore must be used with caution [2, 26]. The use of antihistamines is not recommended in pruritic conditions that are not mast cell mediated [9, 24], but may be used for their sedating properties to help break the itch-scratch cycle. It is preferable to avoid long-term use of systemic steroids in the elderly, particularly because of medical comorbidities and impaired immune surveillance. Potential side effects include headaches, gastrointestinal problems, and neuropathy, and there is further risk of infection, malignancy, and re-activation of herpes zoster when treating older patients [8].

Gabapentin and pregabalin are antiepileptic drugs that have been beneficial in neuropathic disorders causing itch or pain [27]. Although these agents are reasonably well-tolerated, there are dose-dependent side effects that may be hazardous in the elderly, such as dizziness, blurred vision, and sedation [8, 27]. Therefore, a low initial gabapentin dose on 100–300 mg depending on frailty of the patient that gradually commences, up to 1,800 mg in divided doses, is judicious [28]. Similarly, pregabalin cessation should be tapered down to avoid withdrawal symptoms [11].

Mirtizapine is a selective norepinephrine reuptake inhibitor that has been effective in reducing the nocturnal itch of leukaemia, lymphoma, cholestasis, chronic kidney disease, and atopic dermatitis [29]. Compliance in the elderly is facilitated by using a fixed once-daily low dose of 15 mg. Paroxetine and fluvoxamine are selective serotonin reuptake inhibitors that have been used to im-

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prove itch associated with atopic dermatitis, systemic lymphoma, and solid carcinoma [30], although some side effects of paroxetine, such as insomnia and sexual dysfunction, may worsen these conditions in the elderly [31]. Sertraline may be suitable for older people as an effective treatment of cholestatic itch, especially as it is well tolerated. Amitriptyline and doxepin (also acting as H_1 and H_2 antagonists) are tricyclic antidepressants that have been beneficial in treating neuropathic and psychogenic itch [1]. However, amitriptyline in particular has anticholinergic side effects that indicate dosages in the elderly population should start low and taper up [9, 11, 28].

The perception of itch may be reduced with μ-opioid receptor antagonists and κ-opioid receptor agonists [32, 33]. There are potential adverse effects, such as nausea, dizziness, and drowsiness, and μ-opioid antagonists in particular are associated with hepatotoxicity, diarrhoea, and analgesia reversal [11]. Therefore, treatment in the elderly should proceed with caution at lower initial doses. Butorphanol is a κ-opioid agonist/partial μ-antagonist and antimigraine agent administered intranasally (initial dose of 1 mg/day) that has been effective in case reports against intractable nocturnal itch of different types [1, 34]. It may be a helpful treatment option for the elderly population with fewer hazardous side effects than μ-opioid antagonists, as well as ease of use. Thalidomide is an immunomodulator and neuromodulator that has demonstrated considerable efficacy as an antipruritic agent, and may be considered as an alternative treatment for elderly patients who do not otherwise find relief, or used in combination with other treatments such as phototherapy [35].

Physical Treatments in the Elderly

Physical treatments, fully discussed in the chapter by Chan and Murrell [this vol., pp. 54–63], include narrowband TL01 UVB light phototherapy. This is known to be effective in treating chronic pruritus of different types, with the advantage for the elderly population of avoiding adverse drug reactions [9, 36]. Because polypharmacy is a likely factor in the elderly, phototherapy is an especially attractive option, avoiding further systemic medication. Phototherapy in the elderly population can be safe and effective, but caution must be exercised in its administration, particularly where there is multiple drug intake, since photosensitivity and phototoxicity may be increased with longer-lasting, more intense erythema [9, 11, 37]. If photosensitizing medications are being taken, then it is important to check the minimal erythema dose before therapy commences [38]. While this mode of therapy overcomes some physical and cognitive concerns that can cause non-compliance in other treatments, patients should be deemed able to attend regular therapy and stand in a booth for a number of minutes, as well as be able to follow instructions. UV therapy can be offered using a sunbed if standing presents an obstacle to treatment.

Other holistic approaches such as acupuncture may have positive effects on some forms of chronic itch in the elderly. Acupuncture has been beneficial for itch associated with chronic kidney disease. Although there is not strong evidence for this mode of therapy, it may be reasonably offered as a treatment with no adverse effects to elderly patients not responding to first-line treatments [39].

Conclusion

The management of itch in the elderly remains a challenge. A holistic approach is required for each individual patient, based on a detailed history, including comorbidities and polypharmacy, which are common in the older population. A thorough clinical examination and assessment of the patient will help direct the clinician to perform the necessary investigations required. For the treat-

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ment of itch in the elderly, the changes associated with the aging skin should be taken into account including changes in barrier skin function, the immune system (immunosenescence), and neurological and psychological decline. Underlying cutaneous and systemic diseases should be treated and the elderly patient should be provided with symptomatic relief of the itch using topical and systemic therapies. There is no single therapeutic intervention in the management of itch in the elderly, but an individual care plan is essential.

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