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# **Prevalence of pruritus in the elderly in an outpatient dermatologic clinic: a monocentric pilot study**

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## Abstract

Pruritus is a common dermatological condition; only few studies have investigated pruritus in old patients. To investigate the prevalence and features of pruritus in old patients which refer to the Dermatology Unit, Galliera Hospital in Genoa. We evaluated the demographic characteristics of all the patients attending for any skin condition the Outpatient Clinic at the Dermatology Unit, selecting those with pruritus and particularly focusing on patients aged more than 65 years. Pruritus was present in 36/262 patients (14%; M:F=20:16; mean age:59.55 years). Patients with pruritus older than 65 years were 20/262 (8%; M:F=14:6; mean age:74.6 years), that represented 14% out of the 140 patients aged  $\geq 65$  years. We found no statistically differences among patients aged  $\geq 65$  years (20/36) and patients aged  $< 65$  years (16/36) concerning VAS pruritus. In 89% of patients itch was related to a dermatological condition, mainly psoriasis. Only extracutaneous diseases resulted more frequent in the patients aged  $> 65$ . In none of these patients an anamnestic association between drug intake and the onset of pruritus was recorded. We confirm that pruritus is a common skin problem, that is equally frequent both sex, in young and old patients, that in almost all cases is related to an underlying skin condition (mainly psoriasis) and that is rarely anamnestic related to a new drug intake.

## Introduction

Pruritus may be considered as acute (lasting less than 6 weeks) or chronic (lasting more than 6 weeks) and both acute and chronic manifestation of itching are frequently observed among patients who require a dermatological evaluation [1]. Pruritus may be localized or generalized and it is frequently associated to many inflammatory skin or systemic diseases [2]. Especially when it is not accompanied by any skin lesions, it represents a major diagnostic and therapeutic challenge.

Pruritus in the elderly can be defined as a chronic itching in a patient over 65 years old [3]. The underlying causes of itch in the elderly are multifactorial and they seem linked to skin aging, immunosenescence, neurological/psychological changes with aging or drugs [4], therefore a detailed medical history including drugs intake is required. Chronic pruritus in the elderly may cause severe discomfort and pain [5].

Only few studies have investigated pruritus in old patients [6].

## Materials and Methods

We performed a monocentric prospective observational study to investigate the prevalence of pruritus in patients which refer to the Dermatology Unit, Galliera Hospital in Genoa, particularly focusing on patients aged more than 65 years and without taking in consideration common confounding factor as xerosis cutis and drugs intake (if not directly related to pruritus).

We evaluated the demographic characteristics of all the patients attending for any skin condition the Outpatient Clinic at the Dermatology Unit at Galliera Hospital, Genoa, Italy from February 1, 2020, to February 28, 2020. Because of the coronavirus disease 2019 (COVID-19) emergency, on March 9, 2020 Italy went in lock-down imposing the closure of non-urgent outpatient clinics therefore it was not possible to extend longer the study. This study was approved by the regional ethic committee (#154REG2019 - DB id 4544; 20.3.2019). Inclusion criteria were: age  $> 18$  and sign of the consent form. All the patients who signed the consent form and who complained also pruritus, were then asked to complete a visual analogue scale (VAS) assessment for both pruritus and pain (Figure 1) [7]. Based on the literature, VAS categories were considered as followed: 0 = no pruritus,  $> 0 - < 4$  points = mild pruritus,  $\geq 4 - < 7$  points = moderate pruritus,  $\geq 7 - < 9$  points = severe pruritus, and  $\geq 9$  points = very severe pruritus [7]. Moreover, both qualitative and quantitative characteristics were assessed for each patient: age, sex, Fitzpatrick skin type, drug intake (recorded only if an anamnestic relevant association with pruritus was reported; usual medications were not recorded), relevant previous medical history, presence or absence of a concomitant dermatological condition; clinical features and distribution of skin lesions. Similarly to

drugs intake and in order to avoid a confounding factor, also xerosis cutis was not recorded because it is extremely frequent in the elderly (about 50% of patients) [8].

Categorical variables were reported as frequency and percentage. Continuous variables were reported as mean and standard deviation (SD) and compared with the t-test. An alpha level was set to 0.05.

## Results

A total of 262 patients (139 males, 123 females; mean age  $\pm$  SD:  $59.91 \pm 20.8$ ) were enrolled in this study (Figure 1). The total number of patients aged  $\geq 65$  years were 140 patients (53.4%).

Pruritus was present in 36 out of 262 patients (14%; M 20; F 16; mean age 59.55). Fitzpatrick skin type most commonly observed in patients with pruritus was type II (19 patients, 52.8%) followed by type III (5 patients, 13.9%), type V (3 patients, 8.3%), type IV (2 patients, 5.6%) and in 7 patients (19.4%) this data was not available.

Patients with pruritus older than 65 years were 20 out of 262 (8%; M 14; F 6; mean age 74.6), that represented 14% out of the 140 patients aged  $\geq 65$  years.

All together for the 36 patients with itching, VAS pruritus ranged from 5 to 10 and VAS pain ranged from 0 to 4. Considering separately the patients aged  $\geq 65$  years (20 out of 36 patients with pruritus, 55.6%), the VAS score was assessed in 19 patients and the mean value was  $6.60 \pm 1.42$  (range 4-9); in younger patients, aged  $< 65$  years (16 out of 36 patients with pruritus, 44.4%), VAS score was assessed in 15 patients and the mean value  $7.09 \pm 1.25$  (range 5-10). This difference resulted not significantly different ( $p = 0.41$ ).

The severity of pain assessed by the Visual Analog Scale (VAS) was higher in older subjects with a mean value of  $1.6 \pm 1.71$  (range 0-4), while in younger patients the mean value was  $1.33 \pm 1.35$  (range 0-3). This difference resulted not significantly different ( $p = 0.68$ ).

Regarding duration, 17 patients (47%) defined pruritus as chronic, 6 patients as continuous (17%) and 27 patients as discontinuous (75%). About general features, pruritus was reported as diffuse by 10 patients (28%) and circumscribed by 24 patients (67%).

In 32 patients (89%) pruritus was related to a dermatological condition while in only 4 patients (11%) it was present in un-affected skin (*pruritus sine materia*).

Table 1 illustrates the diagnosed dermatological conditions associated in all patients with pruritus while Table 2 refers only to patients older than 65 years. In general, pruritus was commonly associated with nummular eczema, urticaria and psoriasis, that resulted frequent in both groups (younger and older than 65 years). However, there was no statistically difference between the two groups in terms of diagnoses of eczema, psoriasis and atopic dermatitis. On the contrary, extra cutaneous diseases resulted more frequent in the patients aged  $> 65$ , particularly blood hypertension (Table 3).

Seventy-five per cent of the patients with pruritus aged  $\geq 65$  years were in multidrug treatment i.e., for blood hypertension, diabetes mellitus, hypotiriodism, hepatitis C virus infection, or chemotherapeutic agents. However, in none of these patients an anamnestic association between drug intake and the onset of pruritus was observed.

## Discussion

Our study was a monocentric pilot one-month long investigation about frequency and type of pruritus in elderly patients attending our Outpatient Clinic for any skin condition, without considering xerosis cutis or usually drug intake in order to avoid selection bias.

In fact, xerosis cutis is highly frequent in the elderly (more than 50% of those aged 65 years or older) [5] as consequence of loss of barrier function of the skin and therefore itching caused by xerosis may be merely incidental [9]. Also many systemic common drugs usually regularly assumed by old patients may induce pruritus, such as antihypertensive drugs, antiarrhythmics, anticoagulants, antidiabetic drugs, hypolipemic drugs, antibiotics, chemotherapeutics, psychotropics, neuroleptics, antiepileptics, cytostatics, cytokines, growth factors, monoclonal

antibodies and others such as nonsteroidal anti-inflammatory drugs, but almost any drug may induce pruritus by various pathomechanisms [6,10,11]. Although drug-induced pruritus (in case of pruritus without skin rash) is not a distinct category but summarized under “systemic origin” according to the International Forum for the Study of Itch (IFSI) classification, this adverse effect should be taken into account when assessing patients with chronic itch [10,11]. In our study, we recorded drugs only if a relevant anamnestic association with pruritus was reported. In our 36 patients with pruritus, an anamnestic direct association of drug-induced pruritus was not observed.

We confirm that pruritus is a common dermatological symptom, being present in 14% of both general population and patients older than 65 years, without statistically significant differences in VAS pruritus and pain between patients younger or older than 65 years. Only few authors investigated pruritus in the elderly and these studies were characterised by selection bias and differing endpoints (pruritic skin disease or itch) [12-14]. In 2006, a study assessing retrospectively more than 4000 patients aged 65 years or older, found that pruritus was responsible for 11.5% of admissions, being the third most common cause of hospitalization and in line with our observation [12]. Contrarily, Beauregard et al in 1987 found that pruritus in the elderly represented 29% of all complaints; Beauregard [13] and Thaipisuttikul [14] in 1998 reported even a higher frequency (41%) [14]. Interestingly, in our experience we did not find a higher frequency of pruritus in older than in younger patients, in contrast with other studies that reported pruritus more common in the elderly [3].

In almost all patients (89%) itching was an accompanying symptom related to an underlying dermatological condition. Pruritus was reported as chronic in almost half of the patient, and described as diffuse in one third of them. Nummular eczema was the most frequent skin disease recorded in patients younger than 65 years, while other common itching skin disease like atopic dermatitis, urticaria and scabies were registered with low frequency in both groups. Prurigo nodularis was observed in only two patients. Interestingly, pruritus was commonly associated with psoriasis in both groups, younger than 65 years (16%) and older than 65 (25%). In the literature, it is reported that pruritus affects a higher percentage of patients with psoriasis, about 60-90%, a frequency even higher than our observation [15,16].

The IFSI classification [10,11] distinguishes three groups of pruritic individuals: those having pruritus on diseased skin (group I), pruritus on non-diseased skin (group II), and pruritus with secondary skin scratch lesions (group III). In our study, 11 patients were classified as group I (having pruritus on diseased skin), 4 subjects in group II and 5 in group III, according to IFSI classification. Patients of group II refer to the old definition of “senile pruritus”, renamed also idiopathic itch of the elderly or Willan’s itch and it should be reserved for only generalized pruritus in the absence of xerosis cutis or other recognizable cause [9].

Chronic diseases are very common in the elderly population and pruritus may also characterize different underlying systemic disease i.e., among others renal insufficiency, hematological, hepatic or neurological disorders [3]. We did not find a statistically significant difference concerning the recorded systemic disease among the 2 groups. We did not observe renal, hematologic, neurological related pruritus probably because of the relative short period of observation and the population enrolled that referred only to outpatient than to an inpatient one.

Limitations of our study regarded mainly the monocentric outline, the short period of observation (due to COVID-19 lock down), the small population and the enrolled patients that referred only to outpatient clinic and that differs from an inpatient population.

## Conclusions

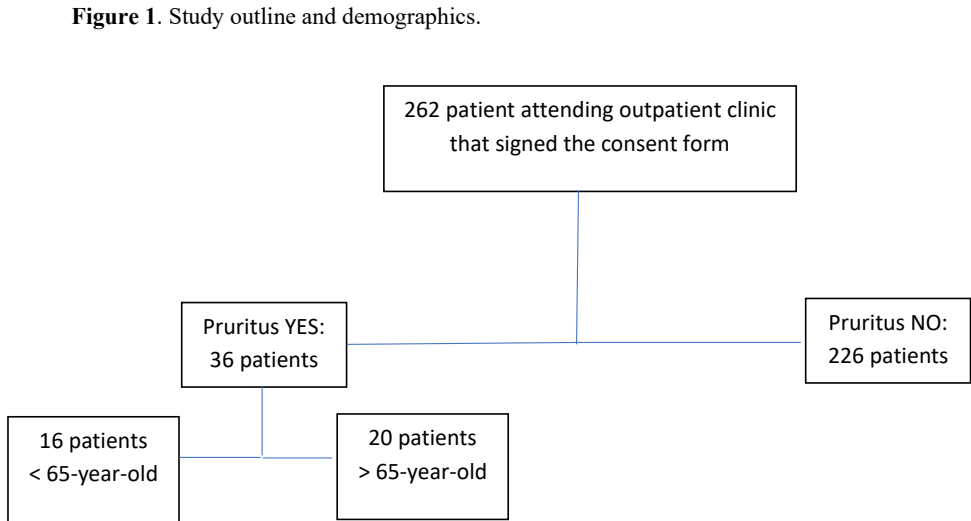
In conclusion, we report the picture of the frequency of pruritus in patients attending an Italian outpatient dermatologic clinic, without taking in consideration common confounding factor as xerosis cutis and drug intake (if not directly related to pruritus). We confirm that pruritus is a common skin problem, that is equally frequent in young and old patient, that in almost all cases is related to an underlying skin condition (mainly psoriasis) and that is rarely anamnestic related to a

new drug intake. Further multicentric larger studies are needed to confirm and expand our observations.

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**Figure 1.** Study outline and demographics.





**Table 1.** Dermatological conditions associated with pruritus in 32 patients (both <65 years old and ≥65 years old) with skin lesions.

<b>Dermatological condition</b>	<b>Total</b>	<b>%</b>
Nummular eczema	6	16
Prurigo simplex	5	14
Psoriasis	5	14
Urticaria	4	11
<i>Pruritus sine materia</i>	4	11
Lichen simplex chr.	3	8
Seborrheic dermatitis	2	5,5
Tinea corporis	2	5,5
Insect bite	1	3
Scabies	1	3
Prurigo nodularis	1	3
Intertrigo	1	3
Atopic dermatitis	1	3

**Table 2.** Dermatological conditions associated with pruritus in 20 patients ≥65 years old.

<b>Dermatological condition</b>	<b>Total</b>	<b>%</b>
Psoriasis	5	25
Prurigo simplex	5	25
Urticaria	1	5
Lichen simplex chr.	1	5
Seborrheic dermatitis	1	5
Scabies	1	5
Prurigo nodularis	1	5
Nummular eczema	1	5
<i>Pruritus sine materia</i>	4	20



**Table 3.** Systemic diseases recorded in patients with pruritus.

	<b>Age &lt; 65 years</b>	<b>Age &gt; 65 years</b>
Heart insufficiency	0	0
Blood hypertension	1	5
Crohn's disease	0	1
Hypotiroidism	1	2
Benign prostatic hypertrophy	0	2
Gastroesophageal Reflux Disease	0	1
Diabetes mellitus	0	1
Breast cancer	0	1
Hepatitis C virus infection	0	1