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Paper code: G Ital Dermatol Venereol-5232

Submission Date: 2015-09-30 13:50:36

Article Type: Original Article

Files:

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Version: 1  
Description: manoscritto originale  
File format: application/msword
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Version: 1  
Description: Tabella I  
File format: application/msword
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Title page

# Psoriatic arthritis prevalence in the clinical practice of dermatologists in North-West Tuscany centres of excellence for psoriasis: a screening experience

To be filled:

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Editorial/medical writing support was provided by Ugo Lancia at Fullcro S.r.l., via Ippolito Nievo 62, 00153 Roma, Italy, and was funded by Pfizer

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**Short title:** A screening experience for psoriatic arthritis in Tuscany

## ABSTRACT

### AIM:

To improve assistance to patients and to provide the most individualized care possible through an early screening for psoriatic arthritis by the dermatologists among patients with cutaneous psoriasis.

### METHODS:

All consecutive patients with psoriasis accessing the outpatients facilities of five dermatologic centres of excellence in the Tuscany region of Italy between December 2014 and February 2015 were screened for the presence of a previous diagnosis of arthritis and for symptoms affecting the articular system by means of some questions chosen and shared by dermatologists in charge of the centres.

### RESULTS:

In the chosen 3 months period, 134 patients affected with psoriasis had been observed, 32 (24 %) of which answered "yes" at the question "Have you ever been diagnosed with arthritis?". There have been differences in the characteristics of patients in the two groups, with and without arthritis: in particular in the arthritis patients an higher mean age, more ungueal psoriasis, less body surface cutaneous psoriasis extension, and a noticeable higher percentage of patients treated with biological drugs (57 % vs. 24.5 %) have been observed.

### CONCLUSION:

The experience seems to confirm the opportunity of screening programs on arthropathy in cutaneous psoriasis patients. About a quarter of psoriasis patients had relevant arthropatic features, and more than half of these required challenging therapies like biologics.

**Key words:** psoriasis, arthritic psoriasis, biologics

## Introduction

Psoriasis is a common dermatologic disease with high prevalence (around the 2 %) in western countries<sup>1</sup>; psoriasis arthritis is a chronic inflammatory disease that will develop during cutaneous psoriasis in percentage that vary from 6 % to 48 % depending on the cohorts examined<sup>1,2</sup>.

Typical manifestations of psoriatic arthritis are distal articulations involvement, spondylitis and dactylitis in  $\geq 50$  % of patients, and ungueal psoriasis up to 80 % of cases<sup>1-3</sup>.

The early manifestations of the arthropathy are usually insidious and often regarded by patients and physicians as a not specific muscular-skeletal pain, also because of the partial knowledge of the relation between cutaneous psoriasis and psoriatic arthritis.

The consequence of this partial knowledge is a delayed diagnosis and an underestimation of the disease severity; actually psoriatic arthritis has an aggressive course in around the 30 % of the cases leading to early articular damage that could be largely reduced or blocked with early treatments, in particular with anti-TNF $\alpha$  agents<sup>4</sup>.

Considering the impact on disability of early diagnosis and treatment, the high prevalence of psoriasis in the general population and the significant percentage of psoriatic arthritis that will develop within 10 years from cutaneous psoriasis<sup>2</sup>, it should be clear that early screening for psoriatic arthritis by dermatologists is an highly desirable objective.

Various questionnaires have been developed with the aim of performing an effective screening and of sending patients to the rheumatologist as soon as possible, even if the real effectiveness of these tools is still under investigation<sup>5-8</sup>.

Referring to the Italian context, in the Tuscany region a lot of interventions have been implemented to intensify dermatologists and rheumatologists interaction, with the aim to improve assistance to patients and provide the most individualized care possible.

## MATERIALS AND METHOD

The experience of 5 dermatologic centres of excellence (Livorno, Pisa, Massa, Lucca, Viareggio), within the Tuscany region has been reported in this paper. In these centres all consecutive patients with psoriasis accessing the outpatients facilities between December 2014 and February 2015 were screened for the presence of a previous diagnosis of arthritis and for symptoms affecting the articular system. The screening was performed by means of some questions chosen and shared by dermatologists in charge in the centres aforementioned on the basis of their clinical experience (table I).

**Table I. Questions to patients on symptoms affecting the articular system**

If at least one of these symptoms were present the dermatologist could advice the patient to undergo a rheumatological consultation.

In addition the dermatologist looked for localization and clinical features of psoriasis (table II).

**Table II. Questions concerning localization and clinical features of psoriasis.**

## RESULTS

In the five operating units of dermatology evaluated during the chosen three months period, 134 patients affected with psoriasis had been observed, 32 (24 %) of which answered “yes” at the question “Have you ever been diagnosed with arthritis?”.

The sex distribution 55F, 76M (global sample F/M ratio 72 %) shows a higher percentage of females in the arthritis group (table III).

**Table III. Sample patients divided according to sex and arthritis diagnosis.**

The mean age of the 134 patients was 57.17 years, with a standard deviation of 15.12. The division by groups with and without arthritis resulted in significant higher mean age in the arthritis group (figure 1). In particular in the arthritis group the mean age was 62.5 years (sd= 13.7) while in the group without arthritis diagnosis the mean age was of 55.4 years (sd= 15.2).

**Figure 1. Age in groups without and with arthritis.**

The clinical pictures of psoriasis was not different between patients with and without arthritis: 31 of 32 arthritis patients and 97 of 102 patients without arthritis diagnosis have been diagnosed with plaque psoriasis (97 % vs 95 %). Ungueal psoriasis was slightly more common in the arthritis group (11 of 29 observations, 38 %) compared to the group without arthritis diagnosis (26 of 101 observations, 26 %) (figure 2).

**Figure 2. Presence of arthritis (horizontal) and of ungueal psoriasis (vertical)**

Patients with psoriasis on more than 50 % of the body surface were 40 of 101 in the group without arthritis (40 % ca.) and 7 of 29 (24 % ca.) in the arthritis group (figure 3).

**Figure 3. Arthritis diagnosis (horizontal) and psoriasis on more than 50 % of body (vertical)**

Current therapies are summarized in the table IV, divided by groups without and with arthritis diagnosis. The percentage of patients with psoriasis and arthritis diagnosis treated



with biological drugs was 57 % (17 patients of 30) while in the group of patients without arthritis diagnosis the percentage was 24.5 % (24 patients of 98).

**Table IV. Drugs employed divided by groups without or with arthritis diagnosis**

Time between psoriasis diagnosis and arthritis diagnosis (data available on 23 patients) was quite spread out, between -9 years (arthritis diagnosis made before psoriasis diagnosis) and + 33 years (psoriasis diagnosis 33 years before arthritis diagnosis) (table V and figure 4).

**Table V. Time (years) between diagnosis of psoriasis and diagnosis of arthritis**

**Figure 4. Time between diagnosis of psoriasis and of arthritis (years)**

The counts of rheumatological symptoms (lumbocrural pain, pain/stiffness at awakening, fingers swelling, pain/swelling of hands-feets-joints, calcaneus pain) were in a higher percentage in patients with a diagnosis of arthritis, as expected.

In table VI anamnestic rheumatological symptoms in the two groups were summarized.

**Table VI. Counts and percentage ( ) of anamnestic rheumatological symptoms in the groups with or without arthritis diagnosis**

## DISCUSSION

The screening experience of these North-West Tuscany centres of excellence for psoriasis provided interesting data, suggesting the screening questions effectiveness and evaluating the relation between cutaneous psoriasis and psoriatic arthropathy. In a consistent way with published data that suggest a significant comorbidity of these two conditions, on 134 patients, a diagnosis of arthritis had been made in 32 (24 %) cases, as recorded through the questionnaire administered.

The analysis of time elapsed between the diagnosis of cutaneous psoriasis and that of arthritis has shown a median of 3 years and a mean of 7 years. Consistently the mean age of patients with comorbidity of cutaneous psoriasis and psoriatic arthritis was 7 years higher.

The higher presence of ungueal psoriasis in the arthritis group (38 % versus 26 %) and the higher presence of psoriasis on more than 50 % of body surface in the group without arthritis (40 % rispetto al 24 %) are results of interest.

No surprise come from the analysis of rheumatological symptoms; joints pain, swelling and stiffness were present in a much higher percentage in patients with arthritis diagnosis, as expected.

The data on therapies showing the use of biological drugs in 57 % of patients with arthritis and in 24.5 % in patients with cutaneous psoriasis symptoms only (even with clinical significant cutaneous involvement) were noticeable.

## CONCLUSIONS

What could be drawn from this dermatologic inpatients experience in the Tuscany region of Italy could be summarized in the confirmation of the opportunity of screening programs on arthropathy in cutaneous psoriasis patients. The questionnaire employed has detected about a quarter of psoriasis inpatients with relevant arthropatic features, complex patients for whom more challenging therapies, like biological drugs, are often recommended and that were administered in the sample in more than half of the cases.

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**Table I. Questions to patients on symptoms affecting the articular system**

<i>Have you ever had pain radiating from the lombar region to the tight, but not going beyond the knee?</i>
<i>Have you experienced frequent pain or articular stiffness when you wake up that improve along the day with movement?</i>
<i>Have you ever had a finger fully swollen, like a sausage?</i>
<i>Have you ever had swelling and pain in the heels, knees or hands?</i>
<i>Have you ever had pain in the calcaneus?</i>
<i>Have you ever been diagnosed with arthritis?</i>

**Table II. Questions concerning localization and clinical features of psoriasis.**

Scalp psoriasis
Palmoplantar psoriasis
Nail psoriasis
Intertrigo and perianal psoriasis
Extended psoriasis
Plaque psoriasis
Pustular psoriasis
Guttate psoriasis
Erythrodermic psoriasis

**Table III. Sample patients divided according to sex and arthritis diagnosis.**

	Psoriasis without arthritis	Psoriasis with arthritis
F	40	15
M	59	17
F/M ratio	68 %	88 %



**Table IV. Drugs employed divided by groups without or with arthritis diagnosis**

<b>Therapies</b>	<b>Psoriasis without arthritis diagnosis</b> (data available on 98 patients)	<b>Psoriasis with arthritis diagnosis</b> (data available on 30 patients)
Acitretine	3	2
Cyclosporine	4	0
Etanercept	9	10
Phototherapy	47	8
Adalimumab	11	7
Methotrexate	4	3
Infliximab	1	0
Ustekinumab	3	0
Topic drugs	16	0
Biological drugs total	24 (24.5 % of the total)	17 (57 % of the total)

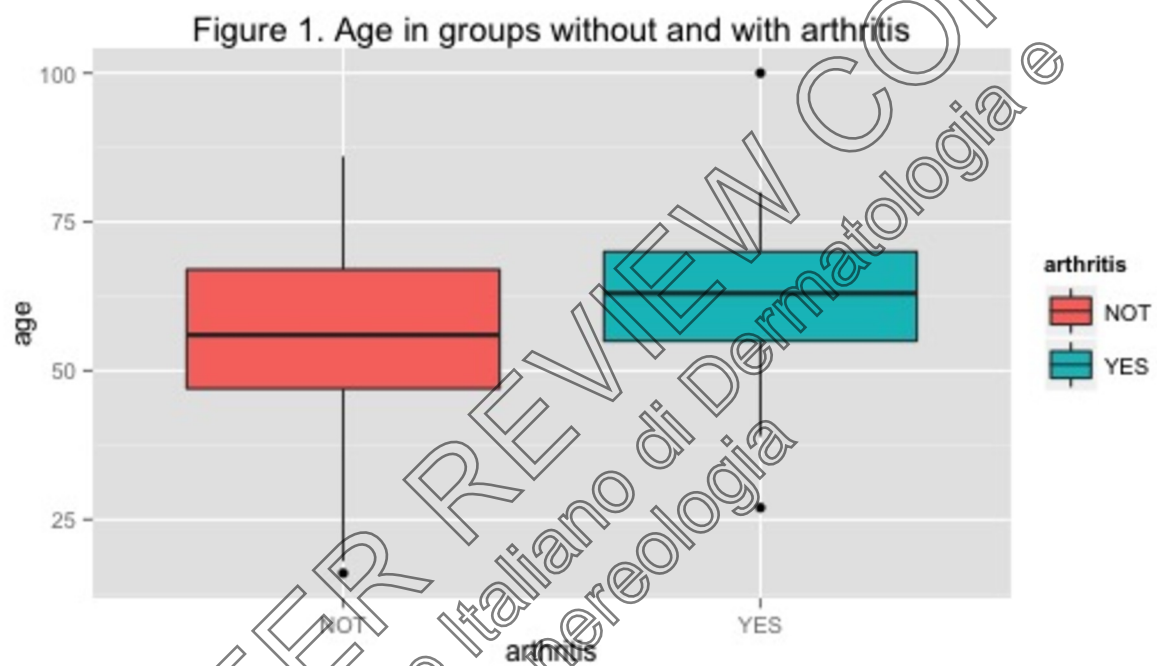
**Table V. Time (years) between diagnosis of psoriasis and diagnosis of arthritis**

Minimum	Quartile 25	Median	Mean	Quartile 75	Maximum
-9	1	3	7	13	33

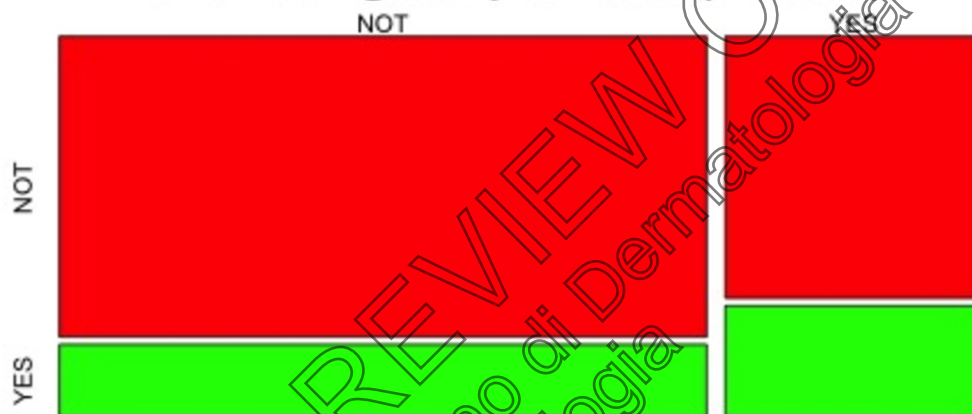
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**Table VI. Counts and percentage (%) of anamnestic rheumatological symptoms in the groups with or without arthritis diagnosis**

	<b>Lumbocrural pain</b>	<b>pain/stiffness at awakening</b>	<b>Joints pain or swelling</b>	<b>fingers swelling</b>	<b>Calcaneus pain</b>	<b>Missing data</b>
<b>Patients with arthritis (n. 32)</b>	25 (78)	28 (87)	22 (69)	14 (44)	17 (53)	2(6)
<b>Patients without arthritis (n. 102)</b>	23 (22.5)	27 (26.5)	30 (29.4)	12 (11.8)	18 (17.6)	11 (10.7)



**Figure 2. Presence of arthritis (horizontal)  
and of ungueal psoriasis (vertical)**



**Figure 3. Arthritis diagnosis (horizontal) and psoriasis on more than 50 % of body (vertical)**

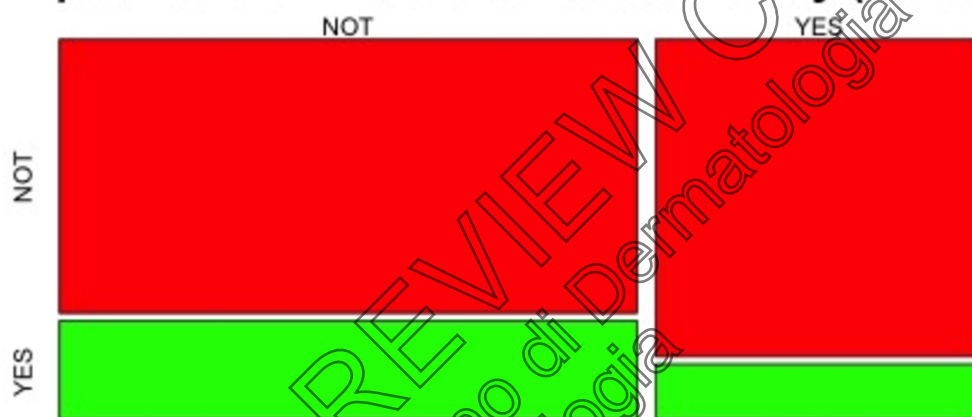


Figure 4. Time between diagnosis of psoriasis and of arthritis (years)

