



## Prevalence of the Metabolic Syndrome (MS) in Patients with Psoriasis: Moroccan Experience

Ramli I, Rachadi H, Amarouch H, Bouhllab J, Senouci K and Hassam B

Departement of Dermatology and Venereology, University hospital Avicenna, University Mohammed V, Rabat-Morocco.

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### ABSTRACT

Several studies have objectified a high prevalence of metabolic syndrome (MS) in psoriasis patients. Objective of the study is to determine the prevalence of metabolic syndrome and its components in psoriasis patients compared with controls, also the factors determinants the occurrence of MS in our patients. This was a prospective study including 100 psoriasis patients versus 100 controls seen in consultation or in hospitals. Conducted for a period of 12 months. The prevalence of MS was higher in patients with psoriasis compared with controls (OR= 2.89, p=0,0002). with a significant increase in obesity (OR = 3.25, p = 0.001), hypertriglyceridemia (OR = 3.9, p = 0.013) and glucose intolerance (OR = 2.13, p = 0.046). Risk factors determining the appearance of SM in psoriatic were age, family history of psoriasis, seniority of psoriasis, but we did not find a correlation with sex, severity of psoriasis and the clinical form. The management of psoriasis will integrate research risk factors for a possible metabolic syndrome and its treatment through a multidisciplinary approach.

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### Introduction

Psoriasis is a chronic, immune-mediated inflammatory skin disease, associated with metabolic and cardiovascular disease. Psoriasis is estimated to affect about 1- 3% of the population in Maghreb. A number of risk factors have been recognized in the etiology and pathogenesis of psoriasis, including family history and environmental risk factors, such as diet, obesity, smoking, stress, and alcohol consumption. Several studies have demonstrated a high prevalence of metabolic syndrome (MS) in psoriasis patients. It is responsible for a significant morbidity and mortality and amending prognosis and management of this disease. Many studies suggest that psoriasis is often associated with the MS to the point that some have suggested that psoriasis could be one of the elements of MS.

The objective of our study was to determine the prevalence of MS and its components in patients with psoriasis compared to controls, as well as the factors that determine the occurrence of MS in our patients and to compare our results with the literature data.

### Material and methods

This is a prospective case control study carried out at the Department of dermatology, university hospital Avicenna, Rabat-Morocco in the period from February 2013 to February 2014 for psoriasis patients and control patients consultant in the same period, receiving no treatment that could interfere with the MS parameters. We excluded from the study non-consenting patients and psoriatic patients who received systemic treatment of psoriasis, including acitretin, methotrexate or PUVA for at least one month before the start of the study. The statistical data were entered and

analyzed using SPSS 13.0., And p <0.05 was considered significant.

**Table I. The prevalence of MS and its components in the psoriatic population and case controls**

	Psoriatic group n (%)	Group control n (%)	OR	IC (95%)	P
MS	32 (32%)	14 (14%)	2,891	1,430-5,84	0.002
Glucose intolerance	22 (22%)	13 (13%)	2,134	1,003-4,54	0.046
Hypertension	36 (36%)	26 (26%)	1,312	0,72-2,37	0.36
abdominal obesity	31 (31%)	13 (13%)	3,255	1,57-6,71	0.001
Elevated triglycerides	14 (14%)	4 (4%)	3,907	1,23-12,32	0.013
Decrease HDL	37 (37%)	28 (28%)	1,510	0,832-2,741	0.17

**Table II. Factors associated with the development of MS in patients with psoriasis**

MS	OR	P	IC (96%)
Age	1,033	0,016	[1,006-1,061]
Sex	1.30	0.36	[0.702 -2.637]
Family history of psoriasis	2,816	0,072	[0,913-8,682]
PASI	0,988	0,383	[0,962-1,015]
Evolution of psoriasis	1,061	0,031	[1,005-1,120]

OR : odds Ratio, IC confidence interval

### Results

169 psoriasis patients were collected of which 100 met the inclusion criteria. These patients were seen in consultation in 22% of cases and in 78% are hospitalized cases. The average age of our patients was 40.3 years +/- 19.5 years, ranging from 6-89 years. A male predominance was noted with a percentage of 59%. The sex ratio male / female was 1.44.

Table III. Comparative table between prevalence of MS among psoriatic patients vs controls in the different series published

	Psoriasis	controls	OR	IC	P
Italy [1]	30.1%	20.6%	1.65	1.16-2.35	
USA [2]	34%	26%	1.5	1.40-1.61	
Tunisia [6]	35.5%	30.8%	1.39	0.88-2.18	0.095
JAPAN [7]			1.82	1.12-3.21	
Germany [10]	4.3%	1.1%	5.92	2.78-12.8	0.001
Our series	32%	14%	2,891	1,430-5,845	0.002

Table IV. The prevalence of different components of MS in psoriatic patients in different series published

SM parameters	USA [2]		Tunisia [4]		Germany [6]		Our series	
	OR	p	OR	P	OR	p	OR	P
Glucose intolerance		0.58	1.2	0.3	2.48	<0.001	2,13	0.04
hypertension		0.02	1.01	0.3	3.2	<0.001	1,31	0.36
Abdominal obesity		0.003	2.2	0.002	-	-	3,25	0.001
Elevated triglycerides		0.12	0.79	0.2	2.09	0.05	3,90	0.013
Decrease HDL	2	0.004		0.64	-	-	1,51	0.17

The seniority of psoriasis was  $7.86 \pm 9$  years (2 months to 50 years). The mode of evolution was progressive in 85.4% of cases. A family psoriasis was noted in 19% of patients and 24% of psoriasis patients were smoking. Regarding control cases, the average age was  $41.15 \pm 18.12$  years. A male was found with a percentage of 57%. A chronic smoking was noted in 26% of cases. We found a higher prevalence of MS in patients with psoriasis compared to controls with a statistically significant difference (OR = 2.89,  $p = 0.0002$ ). By studying each parameter SM, we found a high prevalence of all components of the SM but this increase was significant for obesity (OR = 3.25,  $p = 0.001$ ) hypertriglyceridemia (OR = 3.9,  $p = 0.013$ ) and glucose intolerance (OR = 2.13,  $p = 0.046$ ) (Table II).

After an analytical survey statistics, risk factors determining the onset of MS in patients with psoriasis were age (significantly for patients aged over 40 with  $p < 0.001$ ), family history of psoriasis ( $p = 0.05$ ), the seniority of psoriasis (disease duration 10 years,  $p = 0.07$ ), but we have not found a correlation with sex, psoriasis severity ( $p = 0.46$ ) and clinical presentation ( $p = 0.18$ ) (Table II).

#### Discussion

In the literature several recent studies have shown an increase of MS and its components in patients with psoriasis. This relationship has not been adequately described in our Moroccan context. The increase in the prevalence of MS in patients with psoriasis was observed in several countries including Italy, Israel, India, Japan, China, Tunisia and the United States with a prevalence ranging from 4.3% to 35.5% and an OR of 1.39 to 5.92 (Table III) [1, 2].

Finally, new data indicate that psoriasis association with MS occurs early in the course of the disease when psoriasis is associated with obesity and hyperlipidemia [3]. In our study, the prevalence of metabolic syndrome was higher in psoriatic patients compared to controls cases with a statistically significant difference ( $p = 0.002$ ), even after logistic regression for age and sex which joined data literature [1, 2]. The Tunisian and Japanese studies objectified a high prevalence of MS in patients with psoriasis compared to controls but not statistically significant ( $p = 0.095$ ) [4] [5]. In our series, the separate analysis of each parameter of MS showed a high prevalence of all parameters in psoriatic patients but only glucose intolerance, abdominal

obesity and hypertriglyceridemia were significant. Other series found varying results [2, 4, 6] (Table IV).

This demonstrates the epidemiological variability of psoriasis, probably related to genetic variations and the influence of socio-economic and environmental factors specific to each population [7]. This association has clinical implications for the treatment of patients with psoriasis, as regards screening MS in these patients, taking steps to reduce cardiovascular risk in these patients. So the recognition of the MS can have an impact on the safety and efficacy of the therapy of psoriasis. Thus our results and literature data may partly explain the increased risk of cardiovascular disease, metabolic and mortality in people with psoriasis reported in previous studies [8]. In the literature several factors influence the onset of MS in psoriasis [9].

In our study, the factors associated with MS were first, the age and evolution of psoriasis with high prevalence in patients with psoriasis after 40 years and when the disease progresses over 10 years. This was consistent with published studies [1, 4, 6]. And secondly, the family history of psoriasis was significantly associated with MS in our patients (OR = 2.816 and  $p = 0.05$ ). This could be explained by a common genetic predisposition between psoriasis and MS, in particular the existence of genetic loci pleiotropic (PSORS2-4, CDKAL1 and ApoE4) [7]. In a Tunisian study [4], female gender and plaque psoriasis were factors influencing the onset of MS in the psoriatic population. Contrary to our series and to European and American series where sex and clinical form of psoriasis have no impact on the occurrence of MS [10].

#### Conclusion

After a review of the literature and our knowledge we report the first study evaluating the association of psoriasis with metabolic syndrome in Morocco. Our study showed that metabolic syndrome, obesity, impaired glucose tolerance and hypertriglyceridemia were frequently associated in psoriasis patients compared to controls. Thus the metabolic syndrome should be routinely screened in the presence of these risk factors to ensure taking adequate and comprehensive care to reduce cardiovascular risk.

#### Conflict of interest

None

**References**

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