

Chronic Plaque Psoriasis and Metabolic Syndrome

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Abstract

Background: Psoriasis is an inflammatory disease which can be associated with other diseases, which may have a major impact on patients life. Psoriasis has also been reported to be associated with metabolic disorders. **Metabolic syndrome (MS)** is a combination of medical disorders that, when occurring together, increases the risk of development of cardiovascular diseases and diabetes. It affects one in five people in the United States and the prevalence increases with age. Some studies have shown the prevalence in the USA to be an estimated 25% of the population.

Objective : To investigate the prevalence of metabolic syndrome in patients with psoriasis.

Methods : We performed a hospital-based case-control study on 150 adult patients with chronic

plaque psoriasis and 150 patients with skin diseases other than psoriasis.

Results: Metabolic syndrome was significantly more common in psoriatic patients(42%) than in controls(12%) after the age of 40 years. Psoriatic patients also had a higher prevalence of hypertriglyceridaemia (48%)and abdominal obesity(64%), whereas hyperglycaemia (16%), arterial hypertension (12%)those disease were significantly different compared to the control group.

Conclusion: Psoriatic patients have a higher prevalence of metabolic syndrome, which can increase mortality of psoriasis over time.

Keywords: Psoriasis, Metabolic syndrome ,MS.

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Introduction

Psoriasis is a chronic, inflammatory disease of the skin that affects approximately 2% of the population and poses a lifelong burden for those affected patients.^{1,2} A survey by the national survey Foundation found that 75% of patients with psoriasis reported a moderate to large negative impact of the disease on the quality of their life, with an alteration of everyday activities.^{3,4}

The negative impact of psoriasis may not be limited to its cutaneous or psychosocial manifestations.⁵ Previous studies have suggested a link between, a common inflammatory disorder, and individual components of the metabolic syndrome , such as obesity, hypertension, diabetes and dyslipidemia,⁶⁻¹¹ however, data on the association between psoriasis and the metabolic syndrome defined by a standard definition are scarce, as reflected in a recent review.^{12,13} We are aware of only 3 prior studies that examined this association, based on hospital patients in northern Italy, USA and Turkey.^{14,15,16} Using the National Cholesterol Education Program Adult Treatment Panel III (NCEP ATP III)

criteria, that study reported a 65% increased risk of the metabolic syndrome developing among patients with psoriasis compared with patients with other skin diseases.¹³ To date, to our knowledge, no population-based data are available.

Metabolic Syndrome: is a cluster of risk factors including central obesity, atherogenic dyslipidaemia , hypertension and glucose intolerance, and is a strong predictor of cardiovascular diseases, diabetes and stroke^{14,15}. The importance of metabolic syndrome is that it may confer a cardiovascular risk higher than the individual components¹⁶. The association between psoriasis and metabolic syndrome is also true for mild severity psoriasis and it is independent from the tendency of psoriatic patients to be obese¹⁷⁻¹⁹.

Objective: The aim of this study was to investigate the prevalence of Metabolic Syndrome in patients with chronic plaque psoriasis

Methods:

This study was designed as a prospective case-control study enrolled 150 psoriatic patients admitted to the dermatology clinic

in Al Kindy teaching hospital during Feb.2009– Feb.2011 included ,and 150 healthy individual as control group. Patients receiving any systemic treatment for psoriasis, patients in whom the duration of psoriasis was <12 months, patients <40years of age were excluded from the study. Psoriasis was diagnosed based on clinical and/or histopathologic criteria. The data collected included age, gender, blood pressure ,measurement of body mass index using the formula(weight in kg/height in m²) , duration of psoriasis, , and severity of psoriasis . Evaluation of total lipid profile were done in the laboratory . Measurement of psoriasis severity was performed using the psoriasis area and severity index (PASI). Modified National Cholesterol Education Program Adult Treatment Panel III criteria . If three or more of the following were present, the patient was diagnosed as having MS: abdominal obesity (definition of

abdominal obesity was modified using Asia Pacific WHO guidelines as waist circumference ≥ 90 cm for males and ≥ 80 cm for females), blood pressure $>130/85$ mmHg, fasting blood glucose ≥ 100 mg/dl, hypertriglyceridemia >150 mg/dl, or low HDL cholesterol (<40 mg/dl for males and <50 mg/dl for females).

Results :

In 150 patients and 150 controls, the ages ranged from 20 -65 with a mean (45.45 and SD 10.4 year) for patients and (45.64 and SD 44.0 years) for control , and the duration of psoriasis ranges from 1-45 years with a mean 10 year.

-Relationship between age of psoriatic patient and components: which shows the highest prevalence in the age ranging from (41-50)years there were no significant difference between different age groups as shown in table -1-

Table-1-Relationship between age of the psoriatic patient and components of metabolic syndrome, which shows higher prevalence of obesity , hyperlipidemia and diabetes in the age range from(41-50)years compared to other age groups.

Age	Ht	Obesity	hyperlipidemia	Diabetes
30-40	5(3.33)	18(12%)	16(10.66%)	5(3.33%)
41-50	10(6.66%)	58(38.66%)	46(30.66%)	13(8.66%)
>51	3(2%)	20(13.33%)	10(6.66%)	6(4%)

P.value=0.885(no significant difference between age groups)

-Relation between duration of psoriasis and prevalence of metabolic syndrome components: the results showed that the components of metabolic syndrome were higher at the duration ranging from (16-30)years and reveal a significant difference when compared to the duration s ,more and less as shown in the table -2- . all the components of metabolic syndrome more in patients their duration of disease between 16 and 30 years.

Table-2-Relationship between Duration of psoriasis and prevalence of components of MS.

- Duration in years	No.	HT	Obesity	Hyperlipidemia	DM
1-15	69	5(3.33%)	26(17.33%)	12(8%)	10(6.66%)
16-30	78	11(7.33%)	68(45.33%)	58(36.66%)	11(7.33%)
31-45	3	2(1.33)	2(1.33)	2(1.33%)	3(2%)

P.value=0.041(there is a significant difference between different age groups)

-Relation between degree of severity of psoriasis and the prevalence of the components of metabolic syndrome :which shows the highest prevalence in the moderate severity followed by the mild severity and the least in the sever psoriasis , as shown in table-3-

-Table-3-Relationship between severity of psoriasis and components of metabolic syndrome .

Psoriasis severity by PASI score	no	HT	Obesity	Hyperl.	DM
Mild psoriasis	38	2(1.33%)	34(22.66%)	12(8%)	3(2%)
Moderate psoriasis	99	14(9.33%)	54(36%)	57(38%)	19(12.66%)
Severe psoriasis	13	2(1.33%)	8(5.33%)	3(2%)	2(1.33%)

P. value =0.023(there is a significant difference between moderate , mild and sever psoriasis)

-Prevalence of metabolic syndrome and its components in psoriatic patients and control group ,the findings reveal that where very high in patients compared to control group and all the four components of the metabolic syndrome showed asignificant difference with control group as in table -4-and the prevalenc of metabolic syndrome was (42%) and(8%)in the control group, which shows significant difference.

-Table-4-Psoriatic patients and control group with Metabolic syndrome prevalence in patients and control groups.

	Psoriatic patients		Control group		P. value
HT	18	12%	3	2%	P=0.001
obesity	96	64%	6	8%	P=0.001
Hyperlipidemia	72	48%	6	8%	P=0.001
Diabetes	24	16%	3	2%	P=0.00
Metabolic Syndrome	73	42%	12	8%	P=0.001

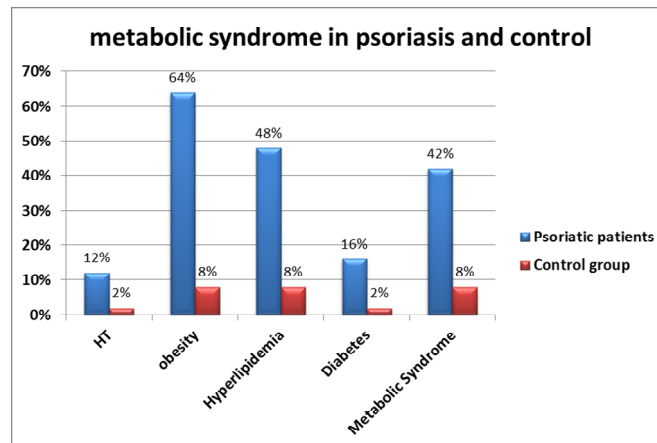


Figure-1- :shows metabolic syndrome components in psoriatic and control groups.

Discussion

Psoriasis is a chronic, immunologically based inflammatory skin disease, Over the last decade, many studies worldwide have shown that people with psoriasis often have

comorbidities like diabetes, hypertension and lipid abnormalities..¹⁻⁴ The importance of metabolic syndrome is that it may confer a cardiovascular risk higher than the individual components adjustment for

conventional cardiovascular risk factors.⁵⁻
⁸The aim of this study was to investigate the prevalence of metabolic syndrome in patients with psoriasis. The association between psoriasis and metabolic syndrome is also true for mild severity psoriasis and moderate severity psoriasis. This study shows a significant difference between cases and control regarding the prevalence of hypertension and obesity, also there is significant difference between cases and control regarding hyperlipidemia. All these findings agree with Madanagobalance S. study¹. This could be due to badly controlled components of the metabolic syndrome and chronically used treatment for psoriasis with topical steroids which increase the risk of future development of the components of metabolic syndrome, our results showed comparable or slightly higher results of MS to other studies in Europe and Asia^{2,3,4}. The results indicate that psoriatic patients have a higher prevalence of metabolic syndrome (42%) with highly significant difference between patients and control (8%) this finding confirm the findings of other studies done in other countries⁹⁻¹³. This study supports the previous observations by Gisondi and other authors that MS has a higher prevalence in patients with psoriasis.^{5,6,7,18}
 This is similar or higher when compared to the findings of other studies conducted abroad^{18,19}. This could be explained first by increased incidence of metabolic syndrome components especially in psoriatic patients. In this study we found increased prevalence was associated with increased duration of the disease, this disagree with an Indian study¹⁷ which shows no correlation between the duration of psoriasis and the metabolic syndrome and this can be explained that psoriatic patients ignore the long time complications. Our study showed more prevalence of metabolic syndrome components in moderate severity psoriasis. There have been varying findings on the relationship between the severity of psoriasis and the presence of MS. A Korean study has shown that MS is significantly more prevalent in patients who had

moderate and severe disease.¹⁰ Other studies have shown that MS is present irrespective of the extent of involvement^{18,19}. This could be explained that inflammation is the key factor in the pathogenesis of psoriasis by lymphocytes cytokines such as TNF (tumor necrosis factor alpha) and IL6 these factors seems to play a role in the development of metabolic syndrome.

Conclusion

Metabolic syndrome forms a major life threatening syndrome associated with psoriasis that should be kept in mind to all dermatologists to decrease the mortality of psoriasis.

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