Research Article

Psoriasis: comorbidities in our community

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Abstract

Introduction. Psoriasis is a chronic immune-mediated inflammatory disease that affects skin, nails, and joints. Its incidence varies from 2 to 4 percent. Advances in knowledge have led us to understand its systemic inflammatory feature. Various studies demonstrated an increased association with some comorbidities such as insulin resistance, obesity, blood hypertension, and dyslipidemias, as well as a higher incidence of neoplasias and autoimmune diseases.
Objective. To analyze if the described comorbidities are present in our Hospital patients.
Materials and methods. We retrospectically reviewed clinical records of 120 patients followed at the Psoriasis Section of Hospital Churruca, taking into account gender, age, evolution time, personal and family history, previous treatments, and laboratory tests.
Results. Out of 120 patients, there were 44 females and 76 males, with ages ranging from 6 to 87 years (mean: 46.5 years). Of these, 54.5 percent of females and 48.6 percent of males had arthralgias. With regard to laboratory tests, 71 patients had some type of carbohydrate metabolism alteration, of whom only 12 patients had history of diabetes. In 92 patients there was at least one type of lipid metabolism alteration (increased total cholesterol: 56 patients; reduced HDL: 58 patients; increased LDL: 45 patients; increased triglycerides: 40 patients), and 12 patients had alterations of all lipid fraction tests.
Conclusions. An integrated approach of the psoriasis patient is essential; thus the dermatologist must know the potential comorbidities in order to enable an early detection and eventual referral to a specialist for adequate treatment (Dermatol Argent 2009; 15(5):340-343).

Key words: *psoriasis, comorbidities, metabolic syndrome.*

Introduction

Psoriasis is a chronic and multisystemic inflammatory disease mainly affecting skin and joints.[1]
Recently it has been demonstrated that psoriasis patients have an increased risk of having cardiovascular disease and metabolic syndrome, among other disorders.
Diverse physiopathogenic hypothesis relating these two diseases include the responsibility of Th1 lymphocytes that release mediators such as TNF-alpha, interferon, and interleukines-1 and 6 in skin and vessel wall tissue inflammation, thus favoring atherosclerosis and carrying the risk of future coronary events.
The presence of increased visceral fat, construed as alteration of the waist-hip ratio, one of the metabolic syndrome criteria, would be an important source of TNF-alpha responsible for inflammation.
The understanding of this causal relationship induces the evaluation of psoriasis patients from an integral point of view, as a patient with a higher cardiovascular risk. The estimation of laboratory alteration percentages and the impact of such diseases on the life of our patients will enable us to compare with estimated risks in papers published in literature, and develop primary and secondary preventive strategies when treating patients with psoriasis.

Reception date: 14/6/09 | **Approval date:** 4/8/09

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Objectives

To analyze if the above described comorbidities associated with psoriasis appear in patients consulting the Psoriasis Section of our Hospital.

Materials and methods

A retrospective and observational study was performed, taking into account data from clinical records of 120 patients followed at the Psoriasis Section of Hospital Churruca in Buenos Aires.
Assessed were: gender, age, disease evolution time, familial history of psoriasis, personal history, previous treatments, as well as laboratory tests including: glycemia, insulinemia, lipid profile, thyroid function.

Results

Of the 120 patients, 44 were females and 76 were males, with ages ranging from 6 to 87 years, and a mean of 46.5 years.
Arthralgia appeared in 54.5 percent of females and 48.6 percent of males.
With regard to laboratory results, 71 (59 percent) patients had some type of carbohydrate metabolism alteration (diabetes, altered fasting glycemia, glucose intolerance), whereof only 12 had previous diagnosis of diabetes. With reference to lipid metabolism disorders, 92 patients had at least one type of alteration, 56 had increased total cholesterol, 58 had reduced HDL, 45 had increased LDL, 40 had increased triglycerides, and 12 patients had alterations in all lipid fractions (total cholesterol, HDL, LDL, and triglycerides).
Diagnosis of arterial blood hypertension was established in 38 of the 120 patients.
With reference to thyroid disease, 20 patients had hypothyroidism. Thyroid autoimmunity was found in 38 patients (32 percent), 28 males and 10 females, that is 41 percent of females and 26 percent of males. Four patients had hyperthyroidism.

Discussion

Before the 1980's it was believed that psoriasis was caused by a keratinocyte proliferation alteration with secondary inflammatory infiltrate, but today psoriasis is considered a multisystemic inflammatory disease mainly affecting in skin and joints.[1,2]
It affects both sexes equally, with an incidence of 2 to 3 percent of the world's population. It appears in a bimodal pattern, with a first peak at 16-22 years (type 1 psoriasis) and a second peak at 57-60 years (type 2 psoriasis). Mean age is 33 years.
Incidence is higher in first and second degree relatives than in the general population. About 30 percent of psoriasis patients refer at least one affected relative. At least nine chromosomic loci associated to psoriasis (known as PSORS 1 to 9) have been recognized.[3,4] Between 35 and 50 percent of patients with a familial disease have PSOR 1 alteration; it appears clinically as psoriasis vulgaris in 90 percent of patients.[3]
The deep impact of psoriasis on the quality of life has been acknowledged, and it has been considered one of the most psychologically and socially disabling skin diseases, comparable to patients with diseases such as cancer, arthritis, hypertension, cardiac disease, and diabetes.[5-7]
In recent years, particular importance has been given to comorbidities frequently associated to psoriasis, such as various degrees of insulin resistance, arterial hypertension, dyslipidemia, and obesity; in turn favoring cardiovascular diseases.
We found that more than half of the group of patients studied had some type of carbohydrate metabolism alteration (71 patients [59 percent], but only 12 patients were known diabetics [10 percent]). Altered postprandial glycemia is important, because of the higher association of cardiovascular complications related to high results 2 hours after ingestion.
At least four theories try to explain this higher incidence. The first one assigns a critical role to genetic factors, since psoriasis diabetes, and lipid metabolism disorders have identified genetic loci, which are shared in some cases.[9] In the second place, a fundamental role is assigned to chronic inflammation, similarly to other autoimmune diseases, such as rheumatoid arthritis, where coronary risk factors are also increased. Th1 lymphocytes release mediators such as TNF-α, INF, and IL-1 and -6, responsible for skin and vessel wall tissue inflammation, thus favoring atherosclerosis. On the other hand, the presence of increased visceral fat is an important source of TNF-α, a fundamental cytokine in psoriasis.[10] In the third place, we found that psoriasis patients have a greater predisposition to environmental coronary risk factors such as sedentary lifestyle, smoking, and alcoholism. And last, the use of drugs potentially increase the risk, such as methotrexate, a known homocysteinemia producer, cyclosporin in relation to AHT and retinoids with hyperlipidemia. The cause of such greater association may not be just one of these factors, but the combination of several of them.
The metabolic syndrome, as a global metabolism disorder and the stage previous to diabetes, has been defined as a set of clinical features deriving in insulin resistance. It may include various combinations of lipid and glucose disorders, obesity and hypertension. No consensus exists about clinical and laboratory criteria defining a patient as a metabolic syndrome carrier, but it is generally admitted that this carrier state represents the association of cardiovascular risk factors with a pathophysiology related to insulin resistance, obesity and type 2 diabetes.
In 1998, WHO suggested the following definition:[9]
Insulin resistance, construed as glucose intolerance, diabetes, or HOMA alterations (insulin/glucose ratio), plus two of the following criteria:

- *Arterial hypertension.*
- *Dyslipidemia*
- *Central or general obesity*
- *Microalbuminuria.*

Patients with moderate to severe psoriasis, who have a more relevant inflammation, may constitute the group of greater risk, with increased mortality rate in severe cases.[3,11]

The increased inflammatory mediators in these doseases have pleiotropic effects on various processes such as angiogenesis, adipogenesis, lipid metabolism, immune cell traffic, and epidermal proliferation.[12]

Gisondi et al. found that, taking into account all metabolic syndrome features, only hypertriglyceridemia and abdominal obesity were significantly relevant in psoriatic versus non-psoriatic patients.

Some epidemiologic studies also indicate that psoriasis *per se* may be an independent cardiovascular mortality risk factor, but variables such as obesity and smoking were controlled, no arterial hypertension risk increase was found.[10,13]

Different lipid metabolism abnormalities appeared in our patient population: 56 patients showed decreased HDL, 40 had increased triglycerides, and 45 had increased LDL.

HDL decrease is intimately related to insulin activity reduction, which determines adipocyte free fatty acid secretion.

Consequently, the liver produces more VLDL from triglycerides, which are exchanged by HDL and LDL cholesterol esters and generate HDL particles rich in triglycerides, which are substrate of the hepatic lipase; in turn, this enzyme reduces the size of the HDLs, thus increasing kidney clearance and leading to its reduction in blood. Likewise triclyceride-rich LDLs are hydrolyzed by the endothelial lipase to smaller and denser LDL, which confers a higher cardiovascular risk to this group of patients.

The acknowledgement of potentially associated comorbidities enables us to perform primary prevention, and in that sense, working with multidisciplinary teams trained on these systemic psoriasis associations is essential (by the same specialist or referring the patient to a general physician.

Conclusions

Several studies demonstrate that psoriasis is related to an increased risk of having diabetes, insulin resistance, dyslipidemia, and consequently, a higher risk of cardiovascular events. On the other hand, the association of psoriasis and thyroid disorders has not been so extensively studied.

From the above, we may conclude that a high percentage of our study population has laboratory abnormalities falling within the scope of a metabolic syndrome, or predisposing to its development.

The high percentage of thyroid abnormalities found during the study must be highlighted, particularly in the male population. Although a male dominance exists in psoriasis, the number of patients with thyroid disorders exceeds the general male population. This phenomenon may be possibly explained by both psoriasis and thyroiditis being autoimmune diseases, in relation to associations demonstrated in several published studies.

This study represents the initial step of an integral clinical follow-up of psoriatic patients. The acknowledgement of laboratory abnormality percentages in our population, together with weight, arterial blood tension, and habit assessment may enable us to modify cardiovascular risk factors, which if left unattended, may negatively affect the health and the quality of life of our patients.

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