Clinical Aspects and Comorbidities of Psoriasis

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ABSTRACT. Psoriasis is a disease mediated by Th1 and Th17 cytokines that has different phenotypes (plaque, guttate, pustular, and erythrodermic type). Aside from the well known psoriatic arthritis, associated disorders may occur more frequently than expected, including Crohn's disease, anxiety/depression, and metabolic syndrome. This is based on a constellation of different factors, including abdominal obesity, atherogenic dyslipidemia, hypertension, and glucose intolerance, and is a strong predictor of type 2 diabetes, cardiovascular disease, and stroke. People with moderate to severe psoriasis have more risk for cardiac disease, presumably due to the inflammatory nature of psoriasis, causing inflammatory changes in coronary arteries. The strong association between psoriasis and obesity potentially makes psoriasis an important healthcare issue. Since cardiovascular risk factors are higher in psoriatic patients, dermatologists treating moderate to severe psoriasis should screen for their presence, thus approaching psoriasis as a potential multisystem disorder. (J Rheumatol 2009;36 Suppl 83:19-20; doi:10.3899/jrheum.090214)

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Psoriasis is a common, chronic, inflammatory disease mediated by Th1 and Th17 cytokines[1] that has several distinct overlapping phenotypes[2,3]. The most common form is chronic plaque psoriasis, which also includes the flexural/intertriginous, scalp, and palmoplantar types. The guttate form corresponds to an acute eruption of small (< 1 cm) papules, which characteristically appear over a period of about 1 month and tend to resolve in the following 2 months. Pustular psoriasis can be localized (palmoplantar pustular psoriasis) or generalized. Confluent psoriasis involving (almost) the entire skin surface is referred to as erythrodermic psoriasis.

Epidemiological studies of psoriasis patients have shown that associated disorders may occur more frequently than expected[4] (Table 1). A specific type of arthritis (psoriatic arthritis, PsA) has been well known for decades[5]. Moreover, psoriasis is a physically and psychologically disabling disease.

The influence of psoriasis on quality of life should be considered regularly in professional interactions with affected patients, since they frequently report physical discomfort, impaired emotional functioning, a negative body and self image, and limitations in some activities[6]. In addition, personality and emotional factors are thought to influence the course of psoriasis.

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Table 1. Common psoriasis-related comorbidities.

Type	Disease
Classic*	Psoriatic arthritis
	Crohn's disease
Affects quality of life	Anxiety/depression
Recently demonstrated	Atherogenic dyslipidemia**
	Cardiovascular disease**
	Diabetes mellitus**
	Hyperhomocysteinemia
	Hypertension**
	Abdominal obesity*

*Related to immune-mediated inflammation;** metabolic syndrome.

METABOLIC SYNDROME

Recently, there has been growth in the understanding of psoriasis as a result of new treatment with biologics. Data amassed from different studies clearly support the notion that, in many patients, psoriasis is associated with one or more risk factors for the so-called metabolic syndrome[7]. This is based on a constellation of different factors including abdominal obesity, atherogenic dyslipidemia, hypertension, and glucose intolerance, and is a strong predictor of type 2 diabetes, cardiovascular disease, and stroke[8].

Up to now, there is no official definition of metabolic syndrome. According to the American Heart Association criteria[9], at least 3 of the following criteria are needed to diagnose the syndrome: abdominal obesity, high levels of triglycerides, low levels of high density lipoprotein cholesterol, elevated blood pressure, and elevated fasting glucose (Table 2).

Table 2. Diagnostic criteria for metabolic syndrome[9].

Criterion	Definition
Increased waist circumference	≥ 102 cm (>40 in) in men
	≥ 88 cm (>35 in) in women
Elevated triglycerides	≥ 150 mg/dl (1.7 mmol/l)
	OR
	On drug treatment for elevated triglycerides
Reduced HDL cholesterol	< 40 mg/dl (0.9 mmol/l) in men
	< 50 mg/dl (1.1 mmol/l) in women
Elevated blood pressure	≥ 130 mm Hg systolic blood pressure
	OR
	≥ 85 mm Hg diastolic blood pressure
	OR
	On drug treatment for hypertension
Elevated fasting glucose	≥ 100 mg/dl
	OR
	On drug treatment for elevated glucose

CARDIOVASCULAR DISEASE

People with moderate to severe psoriasis are at greater risk for cardiac disease, presumably due to the inflammatory nature of psoriasis, causing inflammatory changes in coronary arteries. It has been demonstrated that psoriasis is an independent risk factor for myocardial infarction (MI)[10]. Patients classified as severe had a higher risk of MI than patients with mild psoriasis, and the relative risk of MI was greatest in young patients. Other Th1-mediated diseases, such as rheumatoid arthritis, are associated with an increased risk of MI[11], thus supporting the theory that Th1-mediated diseases could predispose patients to MI. The mechanism is unclear, but one can speculate that a common immunological pathway can function abnormally in these diseases. Both psoriasis and all the components of the metabolic syndrome are associated with increased levels of C reactive protein (CRP), a well known marker of systemic inflammation.

OBESITY AND BODY MASS INDEX (BMI)

The strong association between psoriasis and obesity potentially makes psoriasis an important healthcare issue[12]. A causal relationship between obesity and psoriasis has not been fully established, but patients weighing more than their ideal body weight tend to have worse psoriasis in terms of the proportion of involved skin. Obesity usually follows – not precedes – psoriasis, suggesting that psoriatic inflammation contributes to the obese state[13].

Increased adiposity is associated with raised levels of circulating cytokines, including leptin and resistin[14], which may promote activation of T cells and monocytes, driving both Th1 and Th17 immune responses. It has been hypothesized that psoriasis and obesity share similar mediators of inflammation, such as tumor necrosis factor–α (TNF–α) and interleukin 6 (IL–6), and that obesity may potentiate some of the TNF–α and IL–6-driven inflammation seen in psoriasis. This could, in turn, influence some aspects of the metabolic syndrome.

Moreover, patients with psoriasis and high BMI may experience a slower initial response to systemic psoriasis therapies[15]. It is important to remember that although BMI correlates with the amount of body fat, BMI does not directly measure body fat. As a result, some people, such as athletes, may have a BMI that identifies them as overweight even though they do not have excess body fat.

CONCLUSIONS

At present, psoriasis is still underrecognized as a systemic disease. Since cardiovascular risk factors are higher in psoriatic patients, dermatologists treating moderate to severe psoriasis should screen for their presence, thus approaching psoriasis as a potential multisystem disorder. Lifestyle modifications for the obese psoriatic population are also desirable.

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