

Prevalence of Metabolic Syndrome in Patients with Psoriasis

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Abstract

Background: Psoriasis is a chronic inflammatory disease of the skin and is associated with an increased risk of cardiovascular atherosclerosis. Metabolic syndrome, a conglomerate of various clinical and biochemical parameters is a significant predictor of atherosclerotic disease and the associated risk for cardiovascular events in such patients.

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

Methods: The study is a prospective, hospital based case-control study involving 80 cases and 80 controls. Venous samples were taken at the enrolment visit after the subjects had fasted overnight (at least 8h). Serum cholesterol and triglycerides were measured with enzymatic procedures. Plasma glucose was measured using glucose oxidase method. Metabolic syndrome was diagnosed by the presence of three or more criteria of national cholesterol education programme's adult panel III (ATP III).

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I. Introduction

Psoriasis is a chronic inflammatory skin disease that affects 1-3% of population. Epidemiological research has shown that hypertension, heart failure and diabetes are significantly more common in patients with psoriasis than in controls. Moreover, an increased mortality from cardiovascular disease in patients with severe psoriasis may confer an independent risk of myocardial infarction especially in young patients. Obesity is associated with severe psoriasis and is reported about twice as frequently among psoriasis patients as in general population. The association between psoriasis and metabolic syndrome is also true for mild severity psoriasis and is independent from tendency of psoriatic patients to be obese.

II. Method

The study is hospital based case control study involving series of 160 patients.

Inclusion criteria:

1. Age more than 18 years.
2. Disease duration of at least six months and not receiving any systemic treatment for psoriasis for at least one month before enrolment.

The controls are patients with insignificant complaints, attendants of patients and staff members of the hospital. The source population for cases and controls is the same. An informed consent is taken from all patients and patient characteristics are recorded on a standard proforma. Relevant data included age, gender, weight, height, body mass index, waist circumference, blood pressure, smoking habit, age of onset and duration of psoriasis, type of psoriasis, type and severity of psoriasis. Body mass index has to be calculated as weight in kilograms/height in meters square. To determine waist circumference, we locate the upper hip bone and place measuring tape at the level of upper most part of hip bone around the abdomen (ensuring the tape measure was horizontal). The tape measure is snug but did not cause compression on the skin. Blood pressure is recorded as the average of two measurements after subjects have been sitting for five minutes. Severity of psoriasis is assessed according to psoriasis area and severity index (PASI) and percent body surface area (%BSA) involvement. Psoriasis is considered to be localized or disseminated when it covered less or more than 10% of the BSA involvement. Metabolic syndrome is diagnosed by the presence of three or more of five criteria of National Cholesterol Education Programme's Adult Panel III(ATPIII): waist circumference >102cm in men or >88cm in women; hypertriglyceridaemia >1.7mmol/l (150mg/dl); high density lipoprotein(HDL) cholesterol <1.0 mmol/l (40mg/dl) in men or 1.3mmol/dl(50mg/dl) in women ;blood pressure >130/85mmHg; fasting plasma glucose of >6.1mmol/l (100mg/dl). Venous samples are taken at the enrolment visit after the subjects had fasted overnight (at least 8h). Serum cholesterol and triglycerides are measured with enzymatic procedures. Plasma glucose is measured using a glucose oxidase method.

III. Result

Study included 80 cases and 80 controls. The disease duration included in this study is more than 6 months. We found higher prevalence of metabolic syndrome in cases (28/80= 35%) with a 'p' value of 0.000. individual components of metabolic syndrome such as impaired blood glucose levels, hypertension and dyslipidemia are more prevalent among cases than control. The prevalence of various components of metabolic syndrome are listed in [table 1].

Name Of Parameter	Cases	Controls	P Value
Waist Circumference >88cm In F >102 In M	17 10	18 12	0.81
Fasting Plasma Glucose >100mg/Dl	21	10	0.027
Triglycerides >150mg/Dl	15	6	0.032
Hdl <40mg/Dl In F <50mg/Dl In M	12 18	17 23	0.833
Blood Pressure >130/85mm Of Hg	39	15	0.000
Metabolic Syndrome	28	5	0.000

In all age groups, higher prevalence of metabolic syndrome was noted among cases than controls with a peak age group of 45 to 55 years with no significant gender difference.

IV. Discussion

Psoriasis is a prototypical T- helper (Th1) inflammatory disease characterised by activation and expansion of Th1 cells, Th1 cytokines and antigen presenting cells. These mediators have pleotropic effects on diverse processes such as epidermal proliferation, insulin signalling, angiogenesis, adipogenesis, lipid metabolism and immune cell trafficking. Therefore, the metabolic effects of chronic Th1 inflammation in psoriasis have the potential to impact conditions such as diabetes, obesity and atherosclerosis, and in turn the inflammatory molecules and hormones produced in the later conditions may influence the pathogenesis of psoriasis by promoting susceptibility to development of psoriasis or through increasing the severity of established psoriasis.

Psoriasis and abdominal obesity:

Abdominal obesity was present in 21.25% of psoriatics and 22.5% of controls with a p value of 0.81.

Psoriasis and hypertension:

Hypertension was documented among 48.75% cases which is significantly higher (p value =0.000) in comparison to control group

Psoriasis and hyperglycemia:

A significant association (p value =0.027) was found between hyperglycemia and psoriasis in our study. About 26.25% of cases had hyperglycemia compared to 12.5% of subjects.

Psoriasis and dyslipidemia:

A significant association (p value=0.032) was found between psoriasis and dyslipidemia with odds ratio of 3.

Psoriasis and metabolic syndrome:

Our study observed higher prevalence of metabolic syndrome among patients than controls (35% vs 6.25% or p value = 0.000), which is similar when compared to other studies. We found higher prevalence of individual components of metabolic syndrome.

V. Conclusion

Psoriatic patients have increased risk of developing hypertension, hyperglycemia and dyslipidemia in comparison to general population. All these contribute to higher preponderance to metabolic syndrome and ultimately cardiovascular comorbidities.

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