

Assessment of Cardiovascular Risk in Egyptian Psoriasis Patients

Thesis
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ABSTRACT

Background: Psoriasis is a common chronic inflammatory, immune-mediated skin disease and may cause significant quality of life impairment. Recent advances in the immunopathogenesis of psoriasis have broadened our understanding of psoriasis. Psoriasis is now considered a systemic immunoinflammatory condition, which may carry a risk of cardiovascular disease.

Objective: To assess the cardiovascular risk profile of Egyptian patients with psoriasis compared to age and sex matched controls.

Methods: BMI for 30 psoriasis patients, of various degrees of severity evaluated by PASI, and 30 age and sex matched controls was measured. Blood samples for estimation of serum lipids (cholesterol, TGs, LDL and HDL), homocysteine and hs-CRP were obtained from patients and controls. Cardiometabolic assessment (clinical examination, ECG and Echo) and CT coronary calcium-scoring were performed for both groups.

Results: There was significant increase in BMI, serum lipids, hs-CRP and homocysteine in psoriasis patients compared to controls. No ischemic changes were detected by ECG. Echo detected significant early diastolic dysfunction, systolic dysfunction and one patient was diagnosed for the first time to have DCM. No CAC was detected among psoriasis patients.

Conclusion: According to our results, psoriasis is associated with metabolic syndrome and early systolic and diastolic dysfunction. Psoriasis patients, even with exclusion of known risk factors except obesity, may be at risk of atherosclerosis and CVD.

Key words: psoriasis, systemic immunoinflammatory, risk, cardiovascular disease

Summary

Psoriasis is a common chronic immune-mediated inflammatory disorder, 2-10% of the world's population. Psoriasis is considered a systemic inflammatory condition; this is indicated by several observations, including the presence of elevated inflammatory markers in serum of patients with psoriasis e.g. CRP and homocysteine. Psoriasis is associated with an increased cardiovascular risk profile; the systemic inflammation present in psoriasis, the effects of chronic inflammatory changes, in particular the secretion of proinflammatory cytokines like TNF- α and IL-1, various systemic treatments for psoriasis and an increased prevalence of unhealthy life style factors may all contribute to this unfavorable risk profile.

The scientific evidence linking psoriasis to metabolic syndrome (including: elevated BMI, elevated triglycerides and reduced HDL) and cardiovascular disease (CVD) is rapidly expanding. Patients with psoriasis appear to be at increased risk of atherosclerosis, which may at least in part be explained by an abnormal plasma lipid metabolism; serum triglycerides (TGs), cholesterol and low-density lipoprotein (LDL) are significantly increased in patients with psoriasis compared with healthy control subjects, while high-density lipoprotein (HDL) is significantly decreased. Coronary artery calcification (CAC) is a marker of atherosclerosis and can be quantified noninvasively by CT. In addition to atherosclerotic CVD, patients with psoriasis appear to be at risk for other CV complications e.g. Left ventricular diastolic dysfunction that is also more common in this disease.

Psoriasis is one of the diseases associated with increased hyperhomocysteinemia. Hyperhomocysteinemia may constitute an independent risk factor for cardiovascular disease and may promote atherothrombosis.

Elevated Levels of hs-CRP were found to be associated with a significantly greater risk of cardiovascular events.

Obesity, as a condition of chronic inflammation, is connected with both psoriasis and heart disease. Several studies have found that obesity is one of the major risk factors for atherosclerotic cardiovascular disease. Obesity is significantly more prevalent in patients with psoriasis than in the general population.

Our study included 30 Egyptian psoriasis patients and 30 age and sex matched controls, full history and local and general examination were performed for every patient, and disease severity was evaluated with PASI score. Fasting blood samples were taken from all patients and controls to measure serum lipids, Hcy and hs-CRP, cardiological assessment and MSCT calcium scoring were also done, in addition to calculation of BMI. We found statistically significant psoriasis patients and controls as regards disturbed lipid differences between profile (elevated serum LDL, TGs and cholesterol and reduced HDL), elevated hs-CRP, hyperhomocysteinemia and obesity. There was no statistically significant correlation between BMI, and PASI score and duration of psoriasis. A significant negative correlation was found between HDL level and PASI score which represents psoriasis severity. There was no correlation between high hs-CRP level and hyperhomocysteinemia, and BMI, duration or severity of psoriasis.

No CAC was detected among our asymptomatic psoriasis patients, diastolic dysfunction was significantly higher in patients than controls (48% vs. 10%), a significant early systolic dysfunction was found among patients and one patient was diagnosed for the first time to have DCM as detected by echocardiological TDI with no ischemic changes detected by ECG. No correlation was found between Echo parameters and PASI score, BMI or duration of psoriasis. According to our results, Egyptian psoriasis patients have three/five

criteria of metabolic syndrome (elevated TGs, decreased HDL and elevated BMI) which are sufficient to diagnose the association of psoriasis and metabolic syndrome. Psoriasis patients even with exclusion of known CV risk factors except obesity may be at risk of atherosclerosis and CVD.

The present work provides data to advice health care providers to pay more attention to the cardiovascular risk profile in psoriasis patients. Dermatologists should think of psoriasis patients as a group at increased CV risk, and they should be monitored for lifestyle changes especially obesity and screened for dyslipidemia, hyperhomocysteinemia and CRP elevation and considered for earlier medical intervention for heart disease. However, Prospective research is required to accurately estimate the increased cardiovascular risk in psoriasis patients, to determine the underlying processes and to consider preventive measures according to the absolute risk of cardiovascular disease.