Evaluation of subclinical atherosclerosis in Egyptian psoriatic patients

Raghda Ghonimy Elsheikh [a,1,*], Tarek El-Sayed Amin [b,2], Amal Ahmad El-Ashmawy [c,3], Samah Ibrahim Abd El-fttah Abdalla [d,4]

[a] Cardiology department, Tanta University, Tanta
[b] Dermatology and Venereology Departments, Tanta University, Tanta
[c] Dermatology and Venereology, Tanta University, Tanta
[d] Dermatology and Venereology, Ministry of Health, Kafr Elsheikh Governate

[a,b,c,d] Egypt

Background: **Psoriasis (Ps) is a common, relapsing, immune-mediated, inflammatory skin disorder of unknown etiology. Ps is not single organ disease confined to the skin but it is systematic inflammatory condition analogous to other inflammatory immune disorders which are known to have increased risk of heart disease. On other hand, inflammation plays also an important role in the pathogenesis of atherosclerosis. So, there is striking similarity between molecular and inflammatory pathway in Ps and atherosclerosis.**

Aim of the work: **Was to assess the presence of subclinical atherosclerosis in patients with Ps by using carotid ultrasonography.**

Patients and Methods: **60 patients with Ps were enrolled in this study after exclusion of traditional cardiovascular risk factors and cardiovascular diseases (CVD). In addition, 20 age and gender matched healthy persons served as controls. Patients were classified according to Ps area and severity index (PASI) score into group I (20 mild patients), group II (20 moderate) and group III (20 severe). The average common carotid artery (CCA) intima media thickness (IMT), internal diameter (ID) and arterial wall mass index (AWMI) were measured using high resolution B- mode ultrasound.**

Results: **Psoriatic patients showed statistically significant increase in CCA-IMT (P value 0.001), AWMI (P value 0.010) and significant decrease in ID (P value 0.001), as compared to controls.**

Conclusion: **Psoriasis patients could be suggested as a group with an increased atherosclerotic risk especially in older ages with longer duration of Ps. The carotid IMT, ID and AWMI can identify patients with subclinical atherosclerosis who need special follow up to reduce cardiovascular morbidity and mortality.**

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Keywords: Psoriasis, Common carotid artery, Intima media thickness, Internal diameter, PASI score

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* Corresponding author. Assistant professor of cardiology, cardiology department, Tanta University, Tanta, Egypt. Mobile: +201001307271.
E-mail addresses: raghdaghonimy@gmail.com (R.G. Elsheikh), Tarek_ameen4@yahoo.com (T.El-Sayed Amin), elashmawy2013@yahoo.com (A.A. El-Ashmawy), Samahi@yahoo.com (S.I.A.E. Abdalla).
[1] Assistant professor.
[2] Professor.
[3] Assistant professor.
[4] Specialist.

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P.O. Box 2925 Riyadh – 11461KSA
Tel: +966 1 2520088 ext 40151
Fax: +966 1 2520718
Email: sha@sha.org.sa
URL: www.sha.org.sa

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Introduction

Psoriasis (Ps) is a common, immune-mediated, inflammatory skin condition of unknown etiology that requires lifelong treatment [1]. Advances in understanding the immunopathogenesis and genetics of Ps have shifted from single organ disease confined to the skin to a systematic inflammatory condition analogous to other inflammatory immune disorders. Patients with immune disorders, such as systemic lupus erythematosus (SLE) or rheumatoid arthritis (RA), are known to have increased risk of heart disease; similarly, patients with Ps carry an excess risk of heart disease [2]. Additionally, inflammation plays an important role in the pathogenesis of atherosclerosis [3,4]. There are therefore striking similarities between molecular and inflammatory pathways in psoriasis and atherosclerosis [2].

At present, a number of screening tests that detect symptomatic patients at risk of atherosclerosis are available, such as measurements of carotid artery intima media thickness (IMT) [5] and plaque by high resolution B mode ultrasound. This is a useful, non-invasive surrogate marker of macro vascular atherosclerosis that provides early information on atherosclerosis in subclinical stages of the disease. Increased IMT of the common carotid artery (CCA) is an indicator of generalized atherosclerosis [6]. Carotid atherosclerosis is associated with coronary atherosclerosis and hence the incidence of carotid plaque or increased IMT is higher in patients prone to coronary artery disease [7,8].

Abbreviations

Ps	psoriasis
CVD	cardio-vascular diseases
PASI	psoriasis area severity index
CCA	common carotid artery
IMT	intima media thickness
ID	internal diameter
AWMI	arterial wall mass index
SLE	systemic lupus erythermatosus
RA	rheumatoid arthritis
R	redness
T	thickness
S	scalness
h	head
u	upper extremities
t	trunk
i	lower extremities
MHz	mega hertz
GE	general electric
MI	myocardial Infarction
BMI	body mass index

Patients and methods

This study was conducted on 60 psoriatic patients classified according to PASI score into Group I (20 patients with mild psoriasis), Group II (20 patients with moderate psoriasis) and Group III (20 patients with severe psoriasis). The study also included 20 disease-free subjects, with matching age and gender who served as controls. All subjects were recruited from the Outpatient Clinic of Dermatology and Venereology Department, Tanta University Hospital during the period of June 2011 to June 2012. The Research Ethics Committee of the hospital (code No: 870/04/12) approved the study and informed written consent was obtained from each participant.

Exclusion criteria

Patients included in this study did not have other dermatological or systemic diseases considered as risk factors of atherosclerosis such as hypertension, diabetes mellitus, SLE or RA. Study patients did not have chronic hepatic or renal diseases, vascular problems (such as CVD) or malignancies. The study excluded psoriasis patients receiving anti-psoriatic drugs, systemic (such as corticosteroid, methotrexate or phototherapy) for at least 6 weeks prior to the date of carotid ultrasonography. Pregnant or lactating women or women on contraceptives were also excluded, as were patients and controls who gave a positive history of smoking.

Study participants were subjected to full history-taking, thorough general and dermatological examinations, routine laboratory investigations that included measurement of blood glucose levels (fasting and 2 h postprandial); measurement of lipid profile (cholesterol, triglycerides, high density lipoprotein and low density lipoprotein); complete blood picture, and hepatic and renal function tests. Participants were then assessed on psoriasis severity using the PASI score, which evaluates the severity of psoriasis in relation to three parameters: erythema (redness) (R), infiltration (thickness) (T) and desquamation (scaliness) (S) [9]. Severity is rated for each index on a 0–4 scale (0 for no involvement, and up to 4 for severe involvement). The body is divided into four regions comprising the head (h), upper extremities (u), trunk (t), and lower extremities (i). In each of these areas, the fraction of total surface area affected is graded on a 0–6 scale (0 for no involvement; up to 6 for greater than 90% involvement). The various body regions are weighed to reflect their respective proportion of body surface area. The composite PASI scores for each region by