Serum lipid profile in Psoriasis: a controlled study.

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Abstract

Psoriasis is an inflammatory dermatosis that is characterized with hyperproliferation of keratinocytes and inflammatory infiltration in the epidermis and dermis. The high prevalence of atherosclerosis has been reported in psoriatic patients. High serum lipid level has been suggested in the pathogenesis of this phenomenon. In this study, our purpose was to compare the lipid profile in psoriatic patients with non-affected persons. This study was designed and conducted as a case-control assay with 19 patients in the first group and24 cases as control groups. The lipid profile, including serum level of triglyceride, cholesterol, low-density lipoprotein (LDL), and high-density lipoprotein (HDL), were assessed in both groups. The patient group consisted of 19 (6 male and 13 female)and control group consisted of 24cases (11 male and 13 female). The serum triglyceride, and LDL was significantly higher in psoriatic patients ($P < 0.05$).

CONCLUSION: This study, like previous assays, shows that high serum lipid level is significantly more common in psoriasis. This fact may be responsible for higher prevalence of cardiovascular accident in psoriatic patients. It may be useful to do early screening and treatment of hyperlipidaemia in psoriasis to prevent the atherosclerosis and its complications.

Introduction

Psoriasis is a chronic immune-mediated inflammatory disorder that affects nearly 1.5-3% of the world's population. Psoriasis manifests as skin lesions with typical silvery scales and, potentially, by arthritis(1-3). Its etiology is still unknown, while genetic, metabolic and immunological mechanisms have been recommended as its causes. Literature suggests that lipid metabolism maybe playing a role in pathogenesis of psoriasis (4,5) . Previous studies have demonstrated that patients with psoriasis may have an increased risk of contacting a variety of noncutaneous diseases, including arterial and venous occlusive diseases. Changes in plasma lipid and lipoprotein composition in patients with psoriasis may be the reason for the increased risk of atherosclerosis in these patients (6).psoriasis is still forming the most fertilized field in dermatology for research and interest for scientists

over the world, the present study tried to find out if there was a correlation between serum lipid profile and psoriasis.

Materials and Methods

A case control study enrolled 19 psoriatic patients admitted in the Dermatology ward of Tikirit teaching Hospital during September 2008 to September 2010 who were afflicted with psoriasis (of plaques and guttate) and had not yet received any systemic treatment were selected as a case group. Exclusion criteria were: diabetes, obesity(body mass index higher than 30Kg/m2), family history of hyperlipidemia, renal and liver failure, hypothyroidism, taking systemic drugs especially lipids lowering agents, smoking and drinking spirits (alcoholic beverages) in order to eliminate damaging factors on serum lipids level of the patients.
Twenty four individuals among those referred to the Tikirit teaching Hospital for checking without dermatologic diseases or family history of psoriasis or other exclusion criteria as in cases, formed normal control group. Demographic data of patients and control group were collected in specified forms for this purpose.
After a 12-hour fasting period, venous blood was taken in morning from all subjects. Serum total cholesterol, triglyceride,and HDL-cholesterol levels were measured by an enzymatic-colorimetric method.VLDL-cholesterol and LDL-cholesterol values were calculated according to the formulas,VLDL-choleserol=triglyceride/5 and LDL-cholesterol=cholesterol-(VDLD-cholesterol+HDL- cholesterol).Letters of consent was received from all patients .
FBS was recommended to rebut any diabetes possibilities for all cases. the data were analyzed by using Student s (t -test)and level of significant at $p < 0.05$

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Results

Nineteen patients were case group 6 male and 13 female(5 to 60 years, mean age (32.74 SD 17.87),while 24 control group 11 male and 13 female (16 to 70 years, mean age(35.54 SD 13.28). In the patient group, serum triglyceride and LDL-cholesterol levels were significantly higher than those of controls($p < 0.05$).Serum total cholesterol, HDL- cholesterol and VLDL-cholesterol levels did not show any significant difference between the patients and control ($p > 0.05$). All lipid values for the patients and controls are shown in Table 1.

Discussion

The association between psoriasis and dyslipidaemia is somewhat controversial, with inconsistent findings. Serum lipids levels were examined in many different groups of psoriatic patients in comparison to relevant healthy controls (7,8,9,10,11,12,13,14,15). The blood lipid results are considerably dependent on group matching (age, gender, and ethnic and cultural factors). In most of the studies, a statistically significant elevated level of total cholesterol(TC), low-density lipoprotein (LDL) cholesterol and/or triglycerides (TG) in psoriatic patients was demonstrated comparing to a healthy control group(7, 8, 9, 10, 12–15, 16-19). Moreover, there was a decrease of high density lipoprotein (HDL) cholesterol in the serum of psoriatic patients (17-20,21). Only in a few studies no differences in lipid serum levels between psoriatic patients and healthy controls were observed (22, 23, 24).In the present study psoriasis was associated with dyslipidaemia. In which we found significantly higher levels of serum triglycerides and LDL-cholesterol in psoriatic patients than in control (p 0.05).However, we did not find any significant difference levels between psoriatic patients and controls regarding total cholesterol, HDL- cholesterol and VLDL- cholesterol levels.

Several mechanisms for the increased lipid levels in psoriasis have been suggested. Psoriasis is now considered a systemic inflammatory disease, with Th-1 cells, Th-17 cells and inflammatory cytokines contributing to its pathogenesis(1-3,25,26).That is why,in psoriasis, the association between lipid and immunologic abnormalities was observed, so the disease could be described as an immunometabolic syndrome(27,28). Psoriasis is a chronic inflammation characterized by increased Th-1 and Th-17 T cell activity(27).The significant role of cytokines, such as TNF-α, IL-6, IL-8, IFN-gamma, IL-1, and IL-17 in the generation of proatheromatous abnormalities (dyslipidemia, insulin resistance,endothelial dysfunction, clotting system activation and pro-oxidative stress) was reported (27,28,29,30).

The present study has some potential limitations among them the small sample size because of our high standard strict exclusion criteria (Hypertension, diabetes, obesity..ect)to avoid bias results.

To conclude, an association between psoriasis and dyslipidaemia was noted. Further prospective studies are needed to establish our observation with larger sample size. Nevertheless, we suggest that psoriasis has a role as a new risk factor for dyslipidaemia. On the basis of this study and similar studies, dermatologists and general practitioners should recognize the possible association between psoriasis and the dyslipidemia so we emphasize screening for hyperlipidemia in psoriatic patients due to the major role lipids play in the pathogenesis of atherosclerosis and because hyperlipidemia is relatively easy to treat. Pharmaceutical drugs that both reduce hyperlipidemia and suppress inflammation such as statins could provide important candidates for further clinical studies.

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Table 1 Show lipid profile values in patients & control subjects

		Mean ± SD	Min-Max	Comment
Total cholesterol	patients	4.95±1.42	3-7.8	P > 0.5
(mmol/dL)	controls	4.64±1.11	3-6.7	
Triglyceride	patients	1.35±0.53	0.7-2.5	P < 0.05
(mmol/dL)	controls	2.15±1.75	0.7-6.8	
HDL-cholesterol	patients	1.06±0.56	0.1-2.4	P > 0.5
(mmol/dL)	controls	1.05±0.24	0.7-1.5	
LDL-cholesterol	patients	3.24±1.23	1.7-6.1	P < 0.05
(mmol/dL)	controls	2.49±0.94	0.9-3.8	
VLDL-cholesterol	patients	0.58±0.24	0.3-1.13	P > 0.5
(mmol/dL)	controls	0.84±0.73	0.27-3	