

Supplementary Online Content

Mansouri B, Kivelevitch D, Natarajan B, et al. Comparison of coronary artery calcium scores between patients with psoriasis and type 2 diabetes mellitus. *JAMA Dermatol*. Published online August 24, 2016. doi:10.1001/jamadermatol.2016.2907.

eMethods. Detailed Study Methods

eTable 1. Spearman Correlational Analysis of Study Variables With the 3 Study Groups

eTable 2. Summary of Prior Studies of CAC Scores in Psoriasis

This supplementary material has been provided by the authors to give readers additional information about their work.

eMethods. Detailed Study Methods

PDHS cohort was comprised of patients with a clinical diagnosis of DM defined as fasting blood glucose >126 mg/dL, 2-hour post-prandial glucose >200 mg/dL, or the use of oral hypoglycemic agents/insulin in a subject >40 years of age. Both PDHS and PAMSyN focused on unrelated Caucasian patients recruited at the University of Pennsylvania and utilized the same research center, staff, and electron beam CT scanner.

Evaluated parameters

All patients were evaluated after a 12-hour overnight fast. Questionnaires regarding medical, family and social history, medication use, and exercise were completed and verified by a study physician. PASI, PGA, and DLQI evaluations were completed by one of two qualified physician evaluators (BM, DK). Height, weight, waist circumference at the level of the umbilicus was recorded, and bilateral (PDHS, PAMSyN) and unilateral (BUMC) resting systolic and diastolic blood pressures were measured.

The definitions used for hypertension, dyslipidemia, metabolic syndrome, smoking status, exercise, and FRS 10-year risk calculations were the same across all three cohorts. Hypertension was defined as systolic blood pressure > 140, diastolic blood pressure > 90, current anti-hypertensive medications, or reported history of hypertension. Dyslipidemia was defined as serum total cholesterol > 200, LDL-C > 100, triglycerides > 150, current anti-dyslipidemic therapy, or a self-reported history. Exercise and smoking status were defined as yes or no for the respective presence or absence of the activity, regardless of level of activity. Body mass index (BMI) was calculated using the standard formula [BMI = (body weight in kilograms)/(height in meters)²].

Plasma levels of lipids were measured enzymatically (Cobas Fara II; Roche Diagnostic Systems, Somerville, NJ) in lipoprotein fractions after ultracentrifugation (β -quantification technique) in PDHS and PAMSyN, and in whole blood at BUMC (ClearPoint Diagnostic Laboratories, Lewisville, TX). BUMC patients underwent an ECG-gated prospective calcium score examination (LightSpeed VCT, GE Healthcare, Dallas, United States) with a tube potential of 120 kVp and a tube current of 500 mA. Images were reconstructed using standard filtered back projection. CAC was evaluated as a part of normal workflow by an experienced cardiologist using semiautomatic software (SmartScore, GE Healthcare). CAC (mean total Agatston scores) for PDHS and PAMSyN subjects were measured using electron beam tomography from 40 continuous 3 mm thick computed tomograms (Imatron, San Francisco, CA). A single, experienced radiological technologist performed scoring, blinded to clinical and laboratory data, using customized software (Imatron).

eTable 1. Spearman Correlational Analysis of Study Variables With the 3 Study Groups

Variable	PSO	T2 DM	Controls
Age	0.37 (<0.001)	0.43 (<0.001)	0.44 (<0.001)
Body Mass Index	0.31 (<0.001)	0.02 (0.80)	0.04 (0.67)
Waist circumference	0.33 (<0.001)	0.12 (0.18)	0.14 (0.13)
Systolic BP	0.26 (0.003)	-0.03 (0.76)	0.15 (0.10)
Diastolic BP	0.20 (0.02)	-0.09 (0.30)	0.07 (0.42)
FRS 10-yr risk	0.48 (<0.001)	0.30 (<0.001)	0.38 (<0.001)
Total cholesterol	-0.12 (0.19)	-0.10 (0.26)	0.01 (0.89)
LDL	-0.01 (0.88)	-0.18 (0.04)	0.03 (0.70)
HDL	-0.33 (<0.001)	-0.12 (0.18)	-0.10 (0.25)
Triglycerides	0.13 (0.14)	0.21 (0.01)	0.14 (0.10)
VLDL	0.47 (0.09)	0.21 (0.02)	0.12 (0.18)
Glucose	0.23 (<0.01)	-0.03 (0.77)	0.10 (0.26)

Data represented as correlation coefficient (p-value); $p \leq 0.05$ considered significant; BP - blood pressure; LDL - low density lipoprotein; HDL - high density lipoprotein; VLDL - very low density lipoprotein; FRS 10-yr - Framingham 10-year cardiovascular disease risk score

eTable 2. Summary of Prior Studies of CAC Scores in Psoriasis

Source	Subjects (n)	Matching	Mean PSO age, males (%)	Major PSO race (%)	PSO treatment status	Primary CAC finding	PSO CAC severity
Ludwig et al, 2006	PSO: 32 CNTL: 32	Age, gender, smoking, T2DM, BMI, TC and TG	49 yrs, 80%	White (97%)	Both treated and untreated	Significantly high CAC>0 in PSO (59.4%) vs controls (28.1%)	CAC=0: 13 (41%)
							CAC>100: 8 (25%)
							CAC>400: 2 (6%)

Yiu et al, 2012	PSO: 70	Age, gender	46 yrs, 71%	Chinese (100%)	Both treated and untreated	Significantly high CAC>0 in PSO (28.6%) vs controls (3.9%) in crude analysis and on multi- variable adjustment	N/A
	CNTL: 51						

Dowlatshahi et al, 2013*	PSO: 106	None	64 yrs, 44%	White	Both treated and untreated	No significant difference in CAC between PSO and controls in both crude analysis and on adjustment for age, gender and CV risk factors	N/A
	CNTL: 3168						
Staniak et al, 2014	PSO: 221	Age, gender	56 yrs, 51%	White (79%)	Both treated and untreated	PSO severity significantly associated with CAC>400 in unadjusted models	CAC=0: 129 (58%)
	CNTL: 718						CAC>100: 24 (11%)

							CAC>400: 17 (8%)
Hjuler et al, 2015	PSO: 57	Age, gender	51 yrs, 69%	White	Untreated only	Significantly high CAC>0 in Atopic dermatitis (45.2%) vs controls (15.2%) but not with PSO (29.8%). However, PSO (14.6%) showed significantly greater CAC>=100 than controls (0%)	CAC=0: 40 (70%)
	AD: 31						CAC>100: 11 (19%)
	CNTL: 33						CAC>400: 4 (7%)

Torres et al, 2015	PSO: 100	Gender	47 yrs, 64%	White	Both treated and untreated	Significantly high CAC>0 in PSO after adjustment for age, gender and CV risk factors. Also, EAT volume was significantly associated with CAC in PSO	N/A
	CNTL: 202						
Abbreviations: PSO – Psoriasis, CNTL – controls, T2DM – Type 2 Diabetes mellitus, BMI – body mass index, TC- total cholesterol, TG – triglycerides, AD – Atopic dermatitis, CAC – Coronary artery calcium, EAT – Epicardial adipose tissue							
*Only retrospective cohort-based study, rest are cross-sectional case-control studies							