Supplementary Online Content


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

Patients

Patients were recruited consecutively from a tertiary dermatology university hospital clinic. Considered for inclusion were patients referred for treatment at the clinic or patients who responded to a study notification in the Danish Psoriasis Association’s member magazine. Eligible patients were men and women aged ≥ 18 years without symptoms of CAD, diagnosed with moderate-to-severe psoriasis vulgaris (PASI ≥ 10). The exclusion criteria for both groups included: arterial hypertension, unless well controlled with antihypertensive medication for at least 3 months before inclusion (exclusion on blood pressure ≥ 180/100 mm Hg); lipid-lowering treatment, unless well controlled for at least 3 months before inclusion; plasma total-cholesterol ≥ 8 mmol/L; congestive heart failure (New York Heart Association, groups III and IV); reduced kidney function (estimated glomerular filtration rate below 60 mL/min); prior coronary artery revascularization; myocardial infarction or stroke; treatment with methotrexate, cyclosporin, acitretin, and fumarate esters within 6 months before inclusion unless less than a PASI-50% reduction had been observed during this treatment; ultraviolet type B phototherapy and psoralen ultraviolet type A photochemotherapy within 1 month before inclusion; prior or current treatment with biologic agents unless the treatment was discontinued due to insufficient efficacy (< PASI-50% reduction); investigational biological agents within 6 months before inclusion; or concurrent immunosuppressive or anti-inflammatory treatment for other immune diseases. All of the patients underwent clinical evaluation (complete medical history and physical examination) and laboratory evaluation. The following data were recorded: demographic characteristics, psoriasis disease duration, current therapy, psoriatic arthritis or arthralgia, a medical history of traditional cardiovascular risk factors and therapy including family history of premature coronary artery disease in a first-degree relative, tobacco use, medically treated hypertension, dyslipidemia, and diabetes. Smoking status was divided into nonsmoker, current smoker, and/or ever-smoker (current tobacco use or smoked at least 100 cigarettes/approximately 100 grams of tobacco during course of life). The physical examination included height, weight, and blood pressure. PASI, the number of nails with nail psoriasis, and the presence of swollen or tender joints were assessed. Patients in the intervention group were monitored with clinical evaluation and paraclinical assessment every 3 months.
eAnalyzability

The analyzability of CCTA was comparable between groups. In the intervention group, the number of CT images at baseline and follow-up were comparable (mean (SD): baseline 1,208 (549), follow-up 1,345 (705); \(P=0.50\)). Similarly, there were comparable numbers of CT images at baseline and follow-up in the control group (mean (SD): baseline 1,519 (1,052), follow-up 1,272 (386); \(P=0.32\)). There were slightly more analyzable segments per patient at follow-up in the intervention group (mean (SD): baseline 12.7 (1.2), follow-up 13.5 (1.2); \(P=0.01\)). There was no difference in the number of analyzable segments per patient among controls (mean (SD): baseline 13.2 (1.4), follow-up 13.3 (1.2); \(P=0.5\)). Un-analyzable segments were generally distal segments and caused by triggering, movement, and respiration artifacts, a small diameter (<2.0 mm) in distal segments, and segments not anatomically present due to anatomical variation.
eResults

Secondary analysis of coronary computed tomography angiography outcomes

Analysis were repeated after exclusion of 4 patients receiving ustekinumab during follow-up leaving only anti-TNF treated patients in the intervention group; No major changes were seen regarding changes in CAC scores compared with the primary analysis (yearly CAC change: -9 [39], P=0.29), between-group mean CAC difference: 22.4 [95% CI, 2.6-42.2]; P=0.03); number of coronary plaques and severity of luminal narrowing remained unchanged from baseline to follow-up; a statistically nonsignificant decrease in the VWVI were seen at follow-up in the anti-TNF treated patients (7.1 [1.5] vs. 7.0 [1.7]; P=0.83), still resulting in a borderline increased progression of the total wall volume in controls compared with the anti-TNF treated patients (mean difference: 0.7 [95% CI, 0.0-1.4]; P=0.06). Sub-analysis at vessel- and composition level did not indicate other significant differences in the subgroup of anti-TNF treated patients.

Secondary analysis were performed including only patients achieving a ≥ PASI-75% response, excluding 5 patients in the intervention group achieving a 50% ≤ PASI < 75% response and 0 in the control group; CAC scores remained stable in the intervention group at follow-up (yearly CAC change: -17 [62], P=0.20) and between-group comparison of differences from baseline to follow-up remained to show a significantly increased progression of CAC among controls compared with the intervention group (mean CAC difference: 31.0 [95% CI, 2.1-59.9]; P=0.04); number of coronary plaques and severity of luminal narrowing remained stable in this subgroup; VWVI results were stable from baseline to follow-up (7.3 [1.4] vs. 7.4 [1.4]; P=0.97), with borderline progression of the total wall volume in controls compared with the ≥ PASI-75% responders (mean difference: 0.6 [95% CI, 0.1-1.4]; P=0.08).
Panel A shows the 18-segment model of the coronary tree used in the CCTA analysis. Panel B shows a CCTA image in a psoriasis patient with a mixed plaque in the LAD. Panel C shows an example of vessel wall volume analysis with automatic contouring of the vessel wall.

Abbreviations: Cx, circumflex; D1/D2, diagonal branch; LAD, left anterior descending artery; OM, obtuse marginal; PDA, posterior descending artery; PLB, posterior lateral branch; RI, ramus intermedius; RCA, right coronary artery.