VASCULAR INFLAMMATION AND AORTIC WALL CHARACTERISTICS MODULATE FOLLOWING LIFESTYLE CHANGES IN PSORIASIS PATIENTS AT 1 YEAR FOLLOW UP

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Purpose of Study Psoriasis (PSO), a chronic inflammatory skin disease, is associated with increased CV risk and vascular inflammation (VI). However, the effect of therapeutic lifestyle changes (TLC) including exercise on VI over time is unknown. We hypothesized that TLC would lead to an improvement in VI at 1 year accompanied by improvements in aortic wall characteristics.

Methods Used 65 PSO patients, recruited consecutively, underwent FDG PET/CT, phase contrast MRI scans and clinical visits for evaluation of VI, wall characteristics and exercise frequency, at baseline and 1 year follow-up. VI was measured as Target-to-background ratio (TBR), and aortic distensibility (AD) and wall thickness were assessed by commercial software on phase contrast MRI scans. Clinical parameters were ascertained by both survey and provider.

Summary of Results VI decreased at 1 year (6.5% decrease in TBR; $p<0.0001$), and was inversely associated with exercise frequency beyond adjustment for CV risk factors ($\beta=-0.27$; $p=0.001$). Furthermore, this decrease in VI was associated with improvement in AD (40% increase; $p<0.001$) and aortic wall thickness (8.5% decrease; $p<0.001$).

Conclusions Our findings suggest that VI improves with TLC. This 6.5% decrease in VI could lead to ~30% reduction in future adverse events, based on a recent large prospective study. This VI reduction is also associated with improved aortic wall characteristics suggesting that targeting VI as a surrogate marker holds promise to understand the effects of TLC on CV disease.

Table 1: Characteristics of the study group over 1 year follow-up

Characteristics	Psoriasis Baseline (N=65)	Psoriasis 1 year follow-up (N=65)	P
Demographic and Clinical Characteristics			
Age, years	51.6±11.9	52.6±11.9	N/A
Hypertension, N (%)	20 (31%)	16 (25%)	0.02
Hyperlipidemia, N (%)	41 (63%)	36 (55%)	0.01
Type-2 Diabetes, N (%)	9 (14%)	7 (11%)	0.03
Regular exercise (> 5 times/week), N (%)	18 (28%)	35 (54%)	<0.001
Body Mass Index, kg/m ²	30±5.3	30±5	0.43
Cardiometabolic Profile			
LDL cholesterol, mg/dL	101.1±29.4	95.3±36.8	0.01
HDL cholesterol, mg/dL	53.1±15.5	56.5±19.7	<0.001
Framingham risk score, [Median (IQR)]	4 (2-7)	2.5 (1-7)	0.0001
Psoriasis History			
Disease duration, years	20 (8-32)	21 (0-33)	N/A
Body Surface Area affected, [Median (IQR)]	3.4 (1.3-7.3)	1.5 (0.8-6.4)	<0.005
PASI score, [Median (IQR)]	4.8 (3-9.5)	3.5 (2.1-5.6)	<0.0001
Biologic/Systemic therapy, N (%)	28 (43%)	38 (58.5%)	<0.0001
Vascular Inflammation by FDG PET/CT			
TBR for Entire Aorta	1.82±0.27	1.70±0.27	<0.0001
Aortic Wall Characteristics			
Distensibility (x100), mm Hg ⁻¹	0.52 (0.38-0.67)	0.73 (0.51-0.96)	<0.001
Wall thickness, mm	3.75 (2.99-4.42)	3.43 (3.20-3.72)	<0.001

All values are expressed as Mean±SD unless specified otherwise. P values were derived by paired t-test or Wilcoxon signed rank test for continuous variables based on normality, and by Pearson's chi-square test for categorical variables. IQR: interquartile range, PASI: Psoriasis Area Severity Index, TBR: Target to Background Ratio.

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