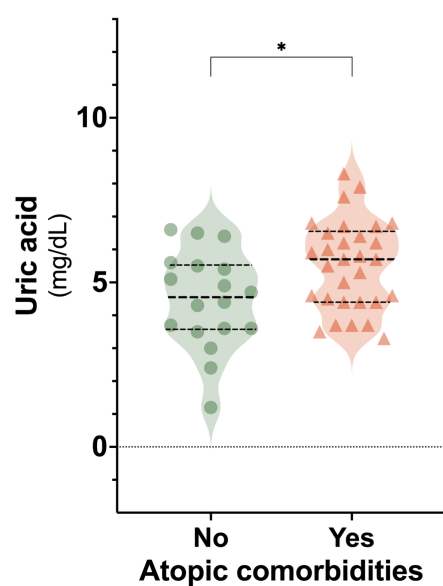


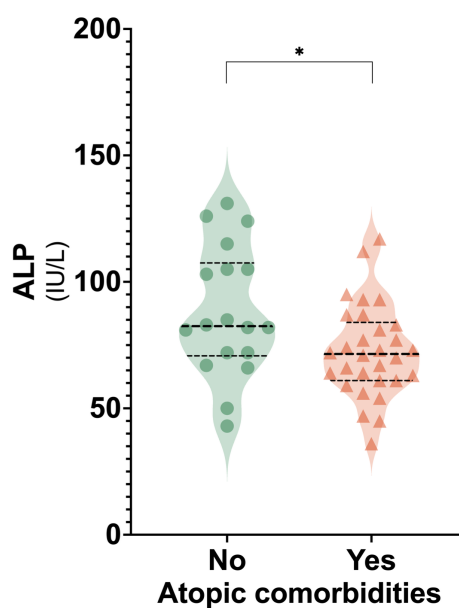
SUPPLEMENTAL FIGURE LEGENDS

Fig. S1. Differences in uric acid and alkaline phosphatase (ALP) levels according to the presence of atopic comorbidities (rhinoconjunctivitis, asthma and/or food allergies). (a) patients with atopic comorbidities showed higher concentrations of uric acid levels (mg/dL) and (b) lower concentrations of ALP levels (IU/L). * $p < 0.05$.

(a)



(b)



SUPPLEMENTAL TABLE LEGENDS

Table SI. Item-by-item results of the 14-point PREDIMED questionnaire assessing adherence to the Mediterranean diet (MD) in patients with atopic dermatitis (AD) and healthy controls.

PREDIMED item	Criterion for 1 point	AD Patients (n=50)	Healthy controls (n=50)	p- value
EVOO (main lipid)	Uses olive oil as the main culinary fat	49 (98%)	50 (100%)	0.31
EVOO	> 4 tablespoons / day	38 (76%)	37/50 (74%)	0.82
Vegetables	> 2 servings / day	24 (48%)	38/50 (76%)	0.004
Fruits	> 3 pieces / day	10/50 (20%)	25/50 (50%)	0.002
Red/processed meats	< 1 serving / day	40/50 (80%)	44/50 (88%)	0.28
Butter, cream, margarine	< 1 serving / day	46/50 (92%)	50/50 (100%)	0.04
Soft drinks	< 1 serving / day	36/50 (72%)	39/50 (78%)	0.49
Wine	> 7 servings / week	2/50 (4%)	1/50 (2%)	0.56
Legumes	> 3 servings / week	20/50 (40%)	31/50 (62%)	0.03
Fish	> 3 servings / week	7/50 (14%)	22/50 (44%)	0.0009
Pastries	< 2 serving / week	25/50 (50%)	36/50 (72%)	0.02
Nuts	> 3 servings / week	17 (34%)	35/50 (70%)	0.0003
White meats	Prefer white over red/processed meats	41 (82%)	49/50 (98%)	0.008
Stir-fry	> 2 servings / week	42 (84%)	44 (88%)	0.56

Values are expressed as n (%). Each item equals 1 point if the adherence criterion is met (maximum score: 14). Higher total scores indicate greater adherence to the Mediterranean diet (MD).

AD: Atopic dermatitis; EVOO: extra virgin olive oil. p-values derived from independent t-tests comparing patients with AD and healthy controls. Statistically significant results ($p < 0.05$) are highlighted in bold.

Table SII. Physical activity (PA) levels assessed by the International Physical Activity Questionnaire (IPAQ) in patients with atopic dermatitis (AD) and healthy controls.

Activity type	Variable	AD Patients (n=50)	Healthy controls (n=50)	p-value
Vigorous PA	Days / week	0.26 ± 1.05	1.00 ± 1.78	0.01
Vigorous PA	Minutes / day	80 ± 34.64	73.85 ± 26.31	0.73
Moderate PA	Days / week	1.06 ± 1.66	2.62 ± 2.13	<0.0001
Moderate PA	Minutes / day	73.42 ± 27.79	66.62 ± 31.32	0.43
Walking	Days / week	4.62 ± 1.94	6.02 ± 1.65	0.0002
Walking	Minutes / day	42.04 ± 4.03	43.30 ± 3.99	0.13

Values are expressed as mean ± standard deviation (SD). Vigorous PA refers to high-intensity activities that make breathing much harder than normal (e.g., running, fast cycling, aerobics). Moderate PA includes activities that cause a moderate increase in breathing or heart rate (e.g., brisk walking, dancing, gardening). Walking refers to any walking activity performed for at least 10 minutes continuously.

Days / week indicate the frequency of each activity, and minutes / day indicate the average duration on active days.

AD: Atopic dermatitis; PA: physical activity.

p-values derived from independent t-tests comparing patients with AD and healthy controls. Statistically significant results ($p < 0.05$) are highlighted in bold.

Table SIII. Hemodynamic parameters adjusted for body mass index (BMI) and educational level.

Variables	AD patients (n=50)	Healthy controls (n=50)	p-value (adjusted for BMI and education)
SBP (mmHg)	132.25 ± 18.50	118.61 ± 12.38	0.04
DBP (mmHg)	81.02 ± 12.27	72.65 ± 10.12	0.02
MAP (mmHg)	103.67 ± 14.66	93.55 ± 9.52	0.01
DP (mmHg)	52.23 ± 14.31	46.24 ± 12.80	0.19
cSBP (mmHg)	131.13 ± 17.74	118.19 ± 14.18	0.005
cDBP (mmHg)	81.66 ± 12.39	73.64 ± 10.29	0.04
HR (bpm)	71.85 ± 11.41	72.04 ± 13.57	0.32
CO (L/min)	4.83 ± 0.11	4.52 ± 0.11	0.07
SV (mL/beat)	68.11 ± 2.03	64.79 ± 2.01	0.07
Alx-75 (%)	25.00 ± 11.66	23.18 ± 11.42	0.39
PWV (m/s)	6.69 ± 1.72	6.11 ± 1.47	0.89
TVR (mmHg*min/L)	1.31 ± 0.20	1.27 ± 0.18	0.94

Values are expressed as mean ± standard deviation (SD).

AD: Atopic dermatitis; SBP: systolic blood pressure; DBP: diastolic blood pressure; MAP: mean arterial pressure; DP: differential pressure, cSBP: central systolic blood pressure; cDBP: central diastolic blood pressure; HR: heart rate; CO: cardiac output; SV: stroke volume; Alx-75: augmentation index at a heart rate of 75 beats per minute; PWV: pulse wave velocity; TVR: total vascular resistance.

Adjusted p-values were obtained by nominal logistic regression including BMI and educational level as covariates. Statistically significant results ($p < 0.05$) are highlighted in bold. Variables not significantly influenced by these covariates in preliminary analyses were not excluded in the adjusted model.

Table SIV. Hemodynamic parameters in patients with atopic dermatitis (AD) stratified by treatment: biologics, JAK inhibitors (JAKi), and advanced therapies.

	Biologics		p-value ¹	JAKi		p-value ²	Advanced therapies*		p-value ³
	Yes (n=24)	No (n=24)		Yes (n=12)	No (n=36)		Yes (n=35)	No (n=13)	
SBP (mmHg)	131.63 ± 18.53	132.86 ± 18.85	0.82	138.83 ± 19.88	130.06 ± 17.76	0.16	133.74 ± 19.22	128.23 ± 16.43	0.37
DBP (mmHg)	82.83 ± 10.82	79.20 ± 13.56	0.31	82.92 ± 3.57	80.39 ± 11.76	0.54	11.97 ± 2.02	12.02 ± 3.33	0.07
MAP (mmHg)	105.17 ± 13.12	102.16 ± 16.19	0.48	108.25 ± 15.90	102.14 ± 14.13	0.21	106.11 ± 14.16	97.08 ± 14.48	0.06
cSBP (mmHg)	129.67 ± 17.21	132.58 ± 18.51	0.57	139.25 ± 18.71	128.42 ± 16.81	0.06	18.12 ± 3.06	16.87 ± 4.68	0.41
cDBP (mmHg)	83.83 ± 11.11	79.5 ± 13.46	0.10	84.00 ± 14.06	80.89 ± 11.91	0.46	12.14 ± 2.05	11.36 ± 3.15	0.04
DP (mmHg)	48.79 ± 14.00	55.67 ± 14.06	0.10	11.15 ± 3.22	15.11 ± 2.52	0.27	13.45 ± 2.27	16.44 ± 4.56	0.30
HR (bpm)	75.17 ± 11.79	68.46 ± 10.18	0.04	67.75 ± 9.91	73.17 ± 11.68	0.16	11.72 ± 1.98	10.40 ± 2.89	0.29
CO (L/min)	4.95 ± 0.65	4.71 ± 0.88	0.30	5.08 ± 0.22	4.75 ± 0.13	0.21	5.01 ± 0.71	4.35 ± 0.20	0.007
SV (mL/beat)	66.54 ± 10.21	69.68 ± 13.09	0.36	75.84 ± 11.70	65.53 ± 10.68	0.007	69.75 ± 11.60	63.69 ± 11.29	0.11
Alx-75 (%)	23.92 ± 12.59	26.08 ± 10.81	0.53	22.00 ± 10.04	26.00 ± 12.12	0.31	23.06 ± 11.79	30.23 ± 9.92	0.05
PWV (m/s)	6.63 ± 1.39	6.75 ± 1.96	0.81	6.74 ± 1.69	6.68 ± 1.70	0.91	1.45 ± 0.24	2.23 ± 0.60	0.58
TVR (mmHg*min/L)	1.28 ± 0.18	1.34 ± 0.22	0.36	1.30 ± 0.24	1.31 ± 0.19	0.84	1.28 ± 0.20	1.38 ± 0.20	0.12

Values are expressed as mean ± standard deviation (SD).

*''Advanced therapies'' column includes patients receiving either biologics or JAKi.

Alx-75: augmentation index at a heart rate of 75 bpm; cDBP: central diastolic blood pressure; PWV: pulse wave velocity; CO: cardiac output; SV: stroke volume; TVR: total vascular resistance; HR: heart rate.

Comparisons between treated and untreated patients were performed using independent t-tests.

Statistically significant results ($p < 0.05$) are highlighted in bold.

Table SV. Hemodynamic parameters adjusted for BMI and educational level.

Variables	AD patients (n=50)	Healthy controls (n=50)	p-value (adjusted for BMI and education)
Glucose (mg/dL)	86.51 ± 18.87	79.92 ± 8.61	0.29
Insulin (mU/L)	8.77 ± 0.85	5.00 ± 2.36	0.61
LDH (IU/L)	215.31 ± 5.84	183.88 ± 9.81	0.03
TG (mg/dL)	99.10 ± 6.88	77.78 ± 6.88	0.72
TC (mg/dL)	189.73 ± 42.62	177.35 ± 34.27	0.91
HDL-C (mg/dL)	53.15 ± 11.99	56.88 ± 12.82	0.72
LDL-C (mg/dL)	117.51 ± 36.05	108.44 ± 32.29	0.71
non-HDL-C (mg/dL)	137.49 ± 43.49	123.41 ± 33.28	0.94
Uric acid (mg/dL)	5.13 ± 1.47	5.13 ± 1.21	0.74
ALP (IU/L)	68.74 ± 2.44	78.59 ± 2.44	0.11
CRP (mg/L)	7.90 ± 1.88	0.84 ± 2.95	0.002
vitamin D (ng/mL)	24.30 ± 1.11	27.59 ± 1.11	0.24
TyG index	8.17 ± 0.08	7.96 ± 0.08	0.86
HOMA-IR	1.83 ± 0.22	1.06 ± 0.67	0.88

Values are expressed as mean ± standard deviation (SD).

AD: Atopic dermatitis; LDH: lactate dehydrogenase; TG: triglycerides; TC: total cholesterol; HDL-C: high-density lipoprotein cholesterol; LDL-C: low-density lipoprotein cholesterol; ALP: alkaline phosphatase; CRP: C-reactive protein; TyG: triglyceride/glucose; HOMA-IR: homeostatic model assessment for insulin resistance.

Adjusted p-values were obtained by nominal logistic regression including BMI and educational level as covariates. Statistically significant results ($p < 0.05$) are highlighted in bold. Variables not significantly influenced by these covariates in preliminary analyses were not excluded in the adjusted model.

Table SVI. Analytical parameters in patients with atopic dermatitis (AD) stratified by treatment: biologics, JAK inhibitors (JAKi), and advanced therapies.

	Biologics		p-value ¹	JAKi		p-value ²	Advanced therapies*		p-value ³
	Yes (n=24)	No (n=24)		Yes (n=12)	No (n=36)		Yes (n=35)	No (n=13)	
Fasting glucose (mg/dL)	89.88 ± 24.84	83.13 ± 9.33	0.22	85.83 ± 10.39	86.72 ± 21.07	0.85	88.14 ± 21.23	82.08 ± 9.43	0.18
Insulin (mU/L)	8.55 ± 7.31	8.96 ± 4.74	0.82	10.05 ± 5.54	8.31 ± 6.22	0.38	9.12 ± 6.79	7.87 ± 3.54	0.42
LDH (IU/L)	222.67 ± 50.52	207.96 ± 33.13	0.24	236.75 ± 55.17	208.17 ± 36.14	0.11	222.94 ± 45.10	194.77 ± 28.66	0.02
TG (mg/dL)	104.12 ± 72.02	94.08 ± 53.40	0.58	105.75 ± 60.06	97.00 ± 64.47	0.67	102.64 ± 67.36	90.00 ± 50.96	0.48
TC (mg/dL)	187.42 ± 36.03	192.04 ± 49.03	0.71	209.58 ± 48.26	183.11 ± 39.08	0.10	193.69 ± 41.24	179.07 ± 46.14	0.33
HDL-C (mg/dL)	52.42 ± 12.03	53.91 ± 12.18	0.67	56.08 ± 11.85	52.14 ± 12.04	0.33	53.77 ± 12.07	51.33 ± 12.08	0.55
LDL-C (mg/dL)	113.92 ± 30.78	121.26 ± 41.21	0.49	132.33 ± 39.50	112.43 ± 33.91	0.13	119.20 ± 34.62	112.58 ± 41.18	0.62
non-HDL-C	135.00 ± 37.83	140.09 ± 49.45	0.70	155.50 ± 45.66	131.31 ± 41.61	0.12	140.60 ± 41.05	128.42 ± 50.82	0.46
Uric acid (mg/dL)	5.29 ± 1.41	4.97 ± 1.54	0.46	5.46 ± 1.66	5.02 ± 1.41	0.42	5.31 ± 1.49	4.63 ± 1.36	0.15
ALP (IU/L)	78.59 ± 23.94	78.60 ± 20.32	0.99	72.92 ± 22.52	80.42 ± 22.40	0.33	75.38 ± 22.10	86.86 ± 20.06	0.08
CRP (mg/L)	10.31 ± 18.98	5.59 ± 10.28	0.30	7.89 ± 11.26	7.90 ± 16.47	0.99	9.24 ± 16.78	4.38 ± 9.55	0.22
vitamin D (ng/mL)	25.02 ± 8.30	23.58 ± 9.94	0.58	22.33 ± 9.59	24.97 ± 9.36	0.42	24.17 ± 8.82	24.63 ± 10.10	0.88
TyG	8.23 ± 0.76	8.11 ± 0.62	0.53	8.25 ± 0.67	8.14 ± 0.70	0.62	8.21 ± 0.71	8.05 ± 0.61	0.43
HOMA-IR	1.76 ± 2.01	1.90 ± 1.06	0.78	2.21 ± 1.23	1.69 ± 1.66	0.27	1.92 ± 1.79	1.61 ± 0.77	0.43
ESR (mm/h)	9.88 ± 10.82	12.5 ± 14.01	0.47	5.83 ± 2.98	12.97 ± 13.87	0.006	10.23 ± 12.08	13.77 ± 3.56	0.42
IgE (IU/mL)	605.95 ± 948.49	778.92 ± 1883.96	0.69	1236.33 ± 2489.62	505.56 ± 920.36	0.34	852.76 ± 1672.34	298.77 ± 842.28	0.15
C3 complement (mg/dL)	108.47 ± 30.23	104.79 ± 18.60	0.63	103.96 ± 22.53	107.43 ± 25.43	0.66	105.54 ± 26.80	108.88 ± 18.29	0.63
C4 complement (mg/dL)	28.20 ± 15.76	20.90 ± 6.97	0.06	19.87 ± 8.11	25.92 ± 13.27	0.07	25.06 ± 14.15	22.45 ± 5.86	0.39
D-dimer (µg/mL)	0.37 ± 0.20	0.32 ± 0.25	0.45	0.32 ± 0.14	0.35 ± 0.25	0.65	0.35 ± 0.18	0.32 ± 0.32	0.77
IL-6 (pg/mL)	9.00 ± 12.26	2.80 ± 3.09	0.03	3.13 ± 3.24	6.7 ± 10.43	0.08	7.01 ± 10.51	2.63 ± 2.95	0.03

Values are expressed as mean ± standard deviation (SD). LDH: lactate dehydrogenase; TG: triglycerides; TC: total cholesterol; HDL-C: high-density lipoprotein cholesterol; LDL-C: low-density lipoprotein cholesterol; ALP: alkaline phosphatase; CRP: C-reactive protein; TyG: triglyceride/glucose; HOMA-IR: homeostatic model assessment for insulin resistance. *''Advanced therapies'' column includes patients receiving either biologics or JAKi. Comparisons between treated and untreated patients were performed using independent t-tests. Statistically significant results ($p < 0.05$) are highlighted in bold.

Table SVII. Correlations between biochemical parameters and vascular/hemodynamic measures in patients with atopic dermatitis (AD).

	SBP		DBP		MAP		PWV		Alx-75	
	r	p	r	p	r	p	r	p	r	p
Fasting glucose (mg/dL)	0.39	0.006	0.24	0.09	0.34	0.02	0.57	<0.0001	0.36	0.01
Insulin (mU/L)	0.61	<0.0001	0.52	0.0002	0.61	<0.0001	0.38	0.01	0.32	0.03
LDH (IU/L)	0.11	0.45	-0.01	0.93	0.11	0.44	0.09	0.55	-0.06	0.71
TG (mg/dL)	0.42	0.003	0.33	0.02	0.43	0.003	0.41	0.003	0.31	0.03
TC (mg/dL)	0.36	0.01	0.31	0.03	0.40	0.005	0.47	0.0008	0.30	0.04
HDL-C (mg/dL)	-0.04	0.89	-0.09	0.74	-0.02	0.93	-0.18	0.51	-0.05	0.85
LDL-C (mg/dL)	0.19	0.20	0.30	0.04	0.06	0.70	0.31	0.04	0.19	0.19
non-HDL-C	0.22	0.15	0.36	0.01	0.06	0.67	0.32	0.03	0.21	0.16
Uric acid (mg/dL)	-0.05	0.76	0.21	0.15	0.13	0.37	0.10	0.49	-0.16	0.28
ALP (IU/L)	0.38	0.008	0.14	0.35	0.27	0.06	0.41	0.003	0.29	0.04
CRP (mg/L)	0.28	0.06	0.16	0.28	0.26	0.08	0.33	0.02	0.14	0.35
vitamin D (ng/mL)	-0.18	0.23	-0.17	0.27	-0.19	0.19	-0.14	0.32	-0.28	0.05
TyG	0.48	<0.0001	0.30	0.04	0.44	0.002	0.57	<0.0001	0.39	0.006
HOMA-IR	0.59	<0.0001	0.48	0.0009	0.57	<0.0001	0.37	0.01	0.29	0.06
ESR (mm/h)	0.24	0.10	-0.05	0.73	0.13	0.39	0.45	0.002	0.44	0.002
IgE (IU/mL)	-0.002	0.99	-0.08	0.58	-0.01	0.92	0.06	0.69	-0.05	0.78
C3 complement (mg/dL)	0.35	0.02	0.12	0.43	0.28	0.06	0.33	0.03	0.27	0.08
C4 complement (mg/dL)	0.04	0.81	0.06	0.70	0.08	0.62	0.06	0.70	-0.0006	0.99
D-dimer (µg/mL)	0.14	0.36	-0.02	0.90	0.09	0.58	0.37	0.01	0.15	0.33
IL-6 (pg/mL)	-0.06	0.69	0.04	0.79	0.01	0.94	0.02	0.91	-0.14	0.37

Pearson correlation coefficients (r) and p-values between biochemical parameters and vascular/hemodynamic measures in patients with atopic dermatitis. Significant correlations ($p < 0.05$) are shown in bold. SBP: systolic blood pressure; DBP: diastolic blood pressure; MAP: mean arterial pressure; PWV: pulse wave velocity; Alx@75: augmentation index standardized to a heart rate of 75 bpm. LDH: lactate dehydrogenase; TG: triglycerides; TC: total cholesterol; HDL-C: high-density lipoprotein cholesterol; LDL-C: low-density lipoprotein cholesterol; ALP: alkaline phosphatase; CRP: C-reactive protein; TyG: triglyceride/glucose; HOMA-IR: homeostatic model assessment for insulin resistance.

Table SVIII. PREVENT-estimated 10- and 30-year cardiovascular risk (CVR) in patients with atopic dermatitis (AD) and controls.

Variables	AD patients (n=31)	Healthy controls (n=29)	p-value
PREVENT 10-year CVD risk (%)	4.23 (1.08–8.79)	2.50 (1.25–4.61)	0.04
PREVENT 30-year CVD risk (%)	18.92 (6.67–28.50)	10.39 (4.16–18.40)	0.06

Values are expressed as median (interquartile range).

AD: atopic dermatitis; CVD: cardiovascular risk. PREVENT: Predicting Risk of Cardiovascular Disease Events. PREVENT risk estimates were calculated in participants aged ≥ 30 years. Thirty-year risk estimates were available only for participants aged 30–59 years, according to the applicability criteria of the PREVENT equations.