Supplementary Materials

Table S1. Baseline DAS28 with its subcomponents.

	Outcome (n=11)	No outcome (n=102)	p-value
Baseline DAS28 with its subcomponents			
DAS28	5.67±1.286	5.76±1.042	0.541
Tender joint count 28	12.18±10.980	10.00±6.834	0.087
Swollen joint count 28	8.55±10.530	7.04±5.179	0.070
Global health	56.36±16.293	59.45±20.312	0.356
ESR	44.82±35.510	49.29±27.394	0.432
CRP	3.32±6.759	2.42±2.923	0.011

DAS: disease activity score; ESR: erythrocyte sedimentation rate; CRP: c-reactive protein; ACPA: anti-citrullinated protein/peptide antibody.

Table S2. Risk of skin and subcutaneous adverse outcome according to scores using logistic regression.

Score	0	2	3	4	5	6	8	9	10
Risk Probability (%)	0.6	3.6	8.5	18.9	36.7	59.2	90.0	95.7	98.2

Table S3. Comparisons of AUC for logistic regression, elastic net, random forest, and SVM models

	AUROC	95% CI	AUPRC	95% CI
GLM	0.90	0.768–1.030	0.80	0.630–0.976
Elastic net	0.90	0.777–1.030	0.84	0.679–0.992
Random forests	0.88	0.740–1.010	0.80	0.633–0.970
SVM with linear kernel	0.89	0.760–1.020	0.79	0.620–0.970
SVM with radial kernel	0.90	0.768–1.030	0.80	0.636–0.969

AUROC: area under the receiver-operating curve; CI: confidence interval; GLM: generalized linear model SVM: support vector machine

Table S4. Machine learning model specifics

Method	Hyperparameter	
	Model Specification and Search Grids	**Selected Values**
Elastic net	λ: 100 equally spaced values in logarithmic scale between 10^{-4} and 0	λ: 0.1707353
	α: 0, 0.2, 0.4, 0.6, 0.8, 1	α: 0
Random forests	mtry: 1, 2, 3, 4	mtry: 1
SVM with linear kernel	C: 0, 0.001, 0.005, 0.01, 0.05, 0.1, 0.25, 0.5, 0.75, 1, 1.25, 1.5, 1.75, 2, 5	C: 0.001
SVM with radial kernel	Sigma: 2^{-15}, 2^{-13}, 2^{-11}, 2^{-9}, 2^{-7}, 2^{-5}, 2^{-3}, 2^{-1}, 2, 2^{3}	Sigma: 0.001953125
	C: 2^{-5}, 2^{-3}, 2^{-1}, 2, 2^{3}, 2^{5}, 2^{7}, 2^{9}, 2^{11}, 2^{13}, 2^{15}	C: 8

SVM: Support vector machine