Supplementary

Table S1 Myocardial work for all patients and the control group

Variables	PM (n=27)	DM (n=19)	AVM (n=24)	P value (PM, DM, and AVM)	IIM (n=46)	P value (AVM *vs.* IIM)	Control (n=30)
Basal MWI	1,127±415	1,284±450	1,209±417	0.489	1,193±432	0.885	1,648±243
Mid MWI	1,221±399	1,342±386	1,180±419	0.429	1,272±394	0.389	1,613±230
Apical MWI	1,346±420	1,550±477	1,305±409	0.176	1,431±451	0.275	1,813±315
Basal CW	1,426±414	1,631±415	1,592±444	0.235	1,512±422	0.479	1,989±254
Mid CW	1,576±433	1,700±383	1,443±494	0.192	1,628±413	0.114	2,008±221
Apical CW	1,850±439	1,999±422[+]	1,614±590	0.049	1912±433	0.024	2,173±321
Basal WW	280±194	184±136	203±100	0.089	240±177	0.366	139±69
Mid WW	209±246	122±101	133±73	0.173	173±201	0.380	81±62
Apical WW	275±280	146±177	250±286	0.254	221±248	0.680	69±41
Basal WE	83±9	88±9	87±5	0.052	85±9	0.262	93±3
Mid WE	88±9	92±6	90±5	0.144	90±9	0.827	96±3
Apical WE	87±25	92±9	86±13	0.154	89±10	0.315	96±2

[+], P<0.05 versus AVM. Values are mean ± SD. PM, polymyositis; DM, dermatomyositis; AVM, acute viral myocarditis; IIM, idiopathic inflammatory myopathies; MWI, myocardial work index; CW, constructive work; WW, wasted work; WE, work efficiency.

Table S2 Differences between different subtypes of IIM in LS and myocardial work

Variables	PM (n=27)	DM (n=19)	P value
Relative basal LS	0.38±0.06[+]	0.41±0.08[+]	0.123
Regional basal LS	−14.3±4.0	−15.9±4.9	0.224
Regional mid LS	−16.6±4.4	−17.9±5.1[+]	0.356
Regional apical LS	−21.2±6.3[+]	−21.7±7.0[+]	0.797
Global LS	−17.4±4.6	−18.5±5.4[+]	0.444
Global MWI	1,231±396	1,392±414	0.204
Global CW	1,617±395	1,777±379	0.192
Global WW	255±232	151±129	0.094
Global WE	86±9	91±7	0.054

[+], P<0.05 versus AVM. Values are mean ± SD. PM, polymyositis; DM, dermatomyositis; MWI, myocardial work index; CW, constructive work; WW, wasted work; WE, work efficiency.

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Table S3 Characteristics associated with proximal myocardial weakness in univariate and multivariable analysis in IIM patients

Characteristics	Univariate analysis		Multivariate analysis	
	OR (95% CI)	P value	OR (95% CI)	P value
Gender				
Male	1			
Female	0.45 (0.11–1.96)	0.291		
Age	1.01 (0.97–1.05)	0.708		
Respiratory muscle involvement				
No	1			
Yes	7.50 (0.71–79.44)	0.094	14.98 (0.86–259.76)	0.063
Interstitial lung disease				
No	1			
Yes	1.60 (0.46–5.59)	0.461		
Dysphagia				
No	1			
Yes	6.67 (0.77–58.04)	0.086	6.92 (0.37–126.51)	0.192
Creatine kinase				
<1,000 U/L	1			
≥1,000 U/L	9.78 (2.22–43.12)	0.003	11.40 (1.91–71.91)	0.010
cTnI	0.98 (0.93–1.03)	0.411		
NT-proBNP	1.00 (1.00–1.00)	0.468		
LVEF	1.03 (0.98–1.07)	0.256		
E/A	3.11 (0.59–16.52)	0.183		
Global LS	0.91 (0.80–1.03)	0.139		
Relative basal LS				
≥0.43	1		1	
<0.43	4.50 (1.03–19.63)	0.045	8.76 (1.15–66.85)	0.036

OR, odds ratio; CI, confidence interval; cTnI, cardiac troponin I; NT-proBNP, N-terminal pro-B-type natriuretic peptide; LVEF, left ventricular ejection fraction; E, peak early; A, peak late; LS, longitudinal strain.

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Table S4 The differences between relative basal LS in IIM patients in different limb parts grouped by MMT

Region	MMT	Relative basal LS	P value
The four extremities	D-P =0 (n=15)	0.43±0.07	0.011†
	0< D-P <2 (n=11)	0.38±0.05	
	D-P ≥2 (n=20)	0.37±0.06	
Upper extremities	D = P (n=20)	0.41±0.08	0.116‡
	D > P (n=26)	0.38±0.06	
Lower extremities	D = P (n=15)	0.43±0.07	0.003‡
	D > P (n=31)	0.37±0.06	

Values are mean ± SD. †, comparisons across three groups were performed using one-way ANOVA with the Bonferroni post hoc analysis; ‡, comparisons between two groups were performed using independent samples t-test. MMT, Manual Muscle Testing; LS, longitudinal strain; D, distal muscle strength grading; P, proximal muscle strength grading; ANOVA, analysis of variance.

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