

A New Definition, Classification and Diagnostic Criteria for Myocarditis

Baylor
College of
Medicine

Biykem Bozkurt, MD PhD, FHFSA, FACC, FAHA, FESC

The Mary and Gordon Cain Chair & Professor of Medicine

Director, Winters Center for HF Research, Associate Director, Cardiovascular Research Institute

Senior Associate Dean for Faculty Development

Baylor College of Medicine, Houston, TX

Medicine Chief, Michael E. DeBakey VA Medical Center

Incoming Editor-in-Chief, *JACC: Heart Failure*

 @BiykemB

Proposed New Definition / Classification of Myocarditis

Syndrome

Definitions of Acute Myocarditis

C

Shock,
Arrhythmia

SEVERE MYOCARDITIS

Myocardial injury / myocarditis with cardiogenic shock, hemodynamically unstable, VT/VF, CHB, severe HF presentation

B

HF, CP

MILD / MODERATE MYOCARDITIS

Myocardial injury / myocarditis with symptoms of CP or HF and cardiac structural changes (in the absence of ACS/AMI)















A

Abnormal
CMR, EKG,
Echo + ↑ Tn

SUBCLINICAL MYOCARDITIS

Myocardial injury with cardiac structural changes without symptoms in patients with cardiac inflammatory risk (excluding ischemia)

Proposed Diagnostic Criteria for Classification of Myocarditis

Type of Myocarditis	Symptoms / Signs	↑ cTn	EKG or Echocardiography or CMR abnormality	EMB	Hemodynamically unstable or VT/VF or advanced AVB
SEVERE MYOCARDITIS Myocardial injury / myocarditis with cardiogenic shock and arrhythmia	 +	 +		 +	
MILD MYOCARDITIS Myocardial injury / myocarditis with cardiac structural changes, symptoms of CP or HF	 +	 +		+ 	
SUBCLINICAL MYOCARDITIS Myocardial injury with cardiac structural changes without symptoms		 +			

Examples of Phenotypes / Diseases Related to New Definition

Syndrome

Definitions of Acute Myocarditis

Shock

SEVERE MYOCARDITIS

Myocardial injury / myocarditis with cardiogenic shock, hemodynamically unstable, VT/VF, CHB, severe HF presentation

Fulminant myocarditis, Giant cell myocarditis, Acute decompensation of inflammatory myocarditis, MIS-C, Check point inhibitors, COVID-19

HF, CP

MILD / MODERATE MYOCARDITIS

Myocardial injury / myocarditis with symptoms of CP or HF and cardiac structural changes (in the absence of ACS/AMI)

Myocarditis (infection), Inflammatory CMP (Sarcoid, Lupus etc), vaccine related

**Abnormal
CMR, EKG,
Echo + ↑ Tn**

SUBCLINICAL MYOCARDITIS

Myocardial injury with cardiac structural changes without symptoms in patients with cardiac inflammatory risk (excluding ischemia)

Myocarditis (Infection, Injury) Exposure to cardiotoxins

C

B

A

Acute Episode versus Chronic and Recurrent Myocarditis

Syndrome	Definitions of Acute Myocarditis
Shock	SEVERE MYOCARDITIS Myocardial injury / myocarditis with cardiogenic shock, hemodynamically unstable, VT/VF, CHB, severe HF presentation
HF, CP	MILD/MODERATE MYOCARDITIS Myocardial injury / myocarditis with symptoms of CP or HF and cardiac structural changes
Abnormal CMR, EKG, Echo + ↑ Tn	SUBCLINICAL MYOCARDITIS Myocardial injury with cardiac structural changes without symptoms in patients with cardiac inflammatory risk (excluding ischemia)



ACUTE MYOCARDITIS



SUBACUTE MYOCARDITIS

RECURRENT MYOCARDITIS

CHRONIC MYOCARDITIS

C

B

A

Acute , Recurrent and Chronic Myocarditis

Acute Myocarditis

An acute episode that resolves
within 4 weeks

Subacute Myocarditis

An acute episode that continues beyond 4 weeks
up to 3 months

Recurrent Myocarditis

An acute episode that re-occurs after
resolution of a former acute episode

Chronic Myocarditis

Evidence of continued ongoing myocarditis beyond 3 months