

The Reply

We thank Temtanakitpaisan et al for their interest in our article on reversible myocardial dysfunction in acute cholecystitis.¹ As mentioned, reversible myocardial dysfunction can be precipitated by a variety of stressors, ranging from acute medical illness to emotional or physical stress (**Table 1**). Of note, reversible myocardial dysfunction has been described in the literature for more than 4 decades, but its pathogenesis remains poorly understood.² It is not known why this disorder is more common in postmenopausal women, and only recently has the predilection for specific myocardial territories (eg, the left ventricular apex) been elucidated.³ Reversible myocardial dysfunction may affect different myocardial segments in the same patient at different time points.¹ This so-called migratory takotsubo cardiomyopathy can be precipitated by rare stressors, such as smoldering cholecystitis, as in our patient.

Reversible myocardial dysfunction clinically reduces myocardial contractile reserve, causing intolerance to volume resuscitation, and it is conceivable that occult ventricular dysfunction in critically ill patients mediates progression toward cardiorespiratory compromise.⁴ Other complications of reversible myocardial dysfunction include ventricular thrombi, posing a risk for systemic embolization.⁵ Overall, reversible myocardial dysfunction increases morbidity and mortality from the underlying disease precipitant, and prompt identification may help prevent some of these adverse consequences. Postulated mechanisms for reversible myocardial dysfunction include catecholamine excess, coronary artery spasm, and microvascular dysfunction.⁶ Apical dysfunction in part may be caused by dynamic mid-cavity or left ventricular outflow tract obstruction. Overall, this syndrome may represent a maladaptive response to catecholamine excess during organ failure among critically ill patients.

By contrast, reversible myocardial dysfunction associated with emotional stress is usually a more benign condition that does not affect overall prognosis.⁶ If appropriately recognized, this may prevent unnecessary healthcare resource use, including invasive cardiac

Table 1 Triggers for Reversible Myocardial Dysfunction

Neurogenic Stunned Myocardium
Subarachnoid hemorrhage
Stroke
Subdural hematoma
Cranial trauma
Electroconvulsive therapy
Acute Respiratory Failure
Upper airway obstruction
Asthma
Pulmonary embolism
Acute lung injury
Acute respiratory distress syndrome
Anaphylaxis
Trauma injuries
Pulmonary contusion
Multiple trauma
Hemorrhagic shock
Blast injury
Burn injuries
Postsurgical pathology transplant
Sepsis
Systemic inflammatory response syndrome
Acute pancreatitis
Acute cholecystitis
Cardiac arrest
Poisoning
Rhabdomyolysis
Pheochromocytoma
Thyroid pathology
Arrhythmias
Hyperthermia/hypothermia
Obstructive jaundice
Emotional stress
Nutrition

Adapted from Bailen et al.⁶

procedures. Management of reversible myocardial dysfunction is geared toward addressing the underlying stressor and supportive care. In rare cases, patients with reversible myocardial dysfunction may need temporary support with inotropic agents and cardiac assist devices, such as intra-aortic balloon pumps.⁶

Reversible myocardial dysfunction is increasingly recognized and may be triggered by a myriad of noncardiac stressors. Clinicians should maintain a high index of suspicion in patients with noncardiac illnesses presenting with new-onset ventricular dysfunction in the absence of underlying ischemic heart disease risk factors.

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