What Is Acute Myocarditis?

Acute myocarditis is inflammation of the heart muscle.

Symptoms and Causes of Acute Myocarditis
Acute myocarditis may cause chest pain, shortness of breath, heart pounding (palpitations), and, rarely, fainting. Many patients report flu-like symptoms (such as fever, fatigue, cough, nausea, vomiting, or abdominal pain) before onset of acute myocarditis.

The most common cause of acute myocarditis is a viral infection (such as coronaviruses, influenza, and parvovirus B19). Acute myocarditis is also associated with some autoimmune diseases (such as lupus), certain drugs (such as immune checkpoint inhibitors), and some vaccines (such as for mRNA COVID-19 vaccine or smallpox vaccine). However, the risk of myocarditis is substantially higher after infection with SARS-CoV-2 than after mRNA COVID-19 vaccination, and the rate of acute myocarditis after SARS-CoV-2 infection is lower among individuals who have received an mRNA COVID-19 vaccination.

Acute myocarditis affects 4 to 14 per 100,000 individuals per year and is more common in males than females. It often occurs between ages 30 and 45 years, although children, teens, and older individuals may also be affected.

Typical Course of Acute Myocarditis
Acute myocarditis does not cause serious health effects in most people. However, about 25% of patients have decreased cardiac strength, heart rhythm abnormalities, or acute heart failure. Between 3% and 9% develop cardiogenic shock, a life-threatening condition in which the heart is not able to adequately pump blood to vital organs in the body. Approximately 1% to 7% of patients die of acute myocarditis.

How Is Acute Myocarditis Diagnosed and Treated?
Patients with acute myocarditis typically have elevated blood levels of troponin, a protein that is normally found only in the heart, and increased blood markers of inflammation. Electrocardiography (ECG) may show abnormal electrical activity of the heart, and echocardiography may reveal decreased heart function. Diagnosis can be confirmed with either cardiac magnetic resonance imaging (MRI) or biopsy of the heart.

Treatment depends on the cause and severity of myocarditis and may include:
- Medications for arrhythmia
- External electrical shock (defibrillation)
- Pacemaker device
- Medications for heart failure
- External support devices
- Heart transplant
- Steroids or immunosuppressive medications

Patients with heart rhythm abnormalities may receive medications for arrhythmias, external electrical shock (defibrillation), and/or a pacemaker. Patients with acute myocarditis and heart failure or cardiogenic shock need close monitoring in a hospital and may require external support devices (such as intra-aortic balloon pump or extracorporeal membrane oxygenation). If no improvement is achieved with these therapies, critically ill patients with acute myocarditis may be offered a left ventricular assist device (a pump that replaces the function of the heart) or may undergo heart transplant.

Exercise After Myocarditis
Patients are often recommended to avoid intense physical activity for 3 to 6 months after diagnosis of acute myocarditis. Follow-up testing before resumption of exercise may include measuring troponin, ECG monitoring, echocardiography, cardiac MRI, and treadmill exercise testing.

FOR MORE INFORMATION
Centers for Disease Control and Prevention
www.cdc.gov/dhdsp/myocarditis.htm

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