

Circulatory shock

MANAGING CARDIOGENIC SHOCK

There are four main classes of shock

- Hypovolemic
- Distributive
- Cardiogenic
- Obstructive

Cardiogenic shock occurs when cardiac output is insufficient for organ perfusion. Perfusion of the heart also relies on cardiac output, which may create a vicious cycle of malperfusion.

Inadequate myocardial oxygenation may occur locally (e.g., from coronary occlusion), or globally from any type of shock.

Causes and treatment

Non-perfusing rhythms

A non-perfusing rhythm (e.g., ventricular fibrillation) will cause cardiogenic shock through ineffective myocyte contraction. This is most commonly the result of myocardial ischemia (e.g., coronary occlusion), structural heart disease (e.g., congestive heart failure), or electrolyte abnormalities / medication effects. Underlying causes should be addressed when possible, and immediate cardiac resynchronization (defibrillation / cardioversion) should be performed to restore a normal rhythm. Medications (e.g., lidocaine, amiodarone) may have an adjunctive effect for refractory cases.

Valvular abnormalities

Valvular abnormalities may also be classified as cardiogenic shock. Most significant valvular lesions

can be classified as stenotic or regurgitant (or both). In general, stenotic lesions (e.g., mitral stenosis) benefit from lower heart rates to allow more time for forward flow. Inotropes may be ineffective against fixed obstruction (e.g., aortic stenosis). In contrast, regurgitant lesions (e.g., mitral regurgitation) often benefit from higher heart rates, as this limits the time available for regurgitant flow. Often, lower blood pressure enables forward flow. Valvular emergencies often require immediate surgical intervention.

Mechanical circulatory support

Mechanical circulatory support may provide temporary support for many cases of cardiogenic shock, while reversible causes are addressed.



Stenosis



Regurgitation