Tikrit university

College of Nursing

Clinical Nursing Science

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Critical Care Nursing

(Cardiogenic Shock)

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Cardiogenic shock

Definition : Cardiogenic shock is a clinical condition of inadequate tissue (end-organ) perfusion due to cardiac dysfunction.

 Pathophysiology:

*The heart muscle loses its contractile power resulting in a marked reduction in Stroke volume(SV)and cardiac output(CO),The decreased CO in turn reduces arterial blood pressure and tissue perfusion in the vital organs (heart, brain, lung, kidneys).

*Flow to the coronary arteries is reduced,decreased oxygen supply to the myocardium, which increases ischemia and further reduces the heart's ability to pump

*Inadequate emptying of the ventricle leads to increased pulmonary pressures, pulmonary congestion, and pulmonary edema, exacerbating the hypoxia, causing ischemia of vital organs, and setting a vicious cycle in motion

 Etiology:

1. Coronary artery disease

2. Cardiac arrhythmias

3. Systolic dysfunction

4. Diastolic dysfunction

5. Valvular dysfunction

6. Mechanical complications

 Clinical Manifestations

The classic signs of cardiogenic shock are tissue hypoperfusion manifested as cerebral hypoxia (restlessness, confusion, agitation), low blood pressure, rapid and weak pulse, cold and clammy skin, increased respiratory crackles, hypoactive bowel sounds, and decreased urinary output. Initially, arterial blood gas analysis may show respiratory alkalosis. Dysrhythmias are common and result from a decrease in oxygen to the myocardium

Physical examination

1. Skin is usually cyanotic and cool; extremities are mottled.

2. Peripheral pulses are rapid and faint and may be irregular if arrhythmias are present.

3. Jugular venous distention and crackles in the lungs are usually (but not always) present; peripheral edema also may be present.

4. Heart sounds are usually distant, and third and fourth heart sounds may be present.

5. The pulse pressure may be low, and patients are usually tachycardiac.

6. Patients show signs of hypo perfusion, such as altered mental status and decreased urine output.

Diagnostic tests

1. Laboratory studies

 Blood urea nitrogen (BUN)

 Creatinine

 LDH

 Arterial Blood Gas analysis (ABGs).

2. Imaging studies

 Echocardiography should be performed early to establish the cause of cardiogenic shock.

 Chest radiographic findings are useful for excluding other causes of shock or chest pain (e.g., aortic dissection, tension pneumothorax, pneumomediastinum) .

 Coronary angiography is urgently indicated in patients with myocardial ischemia or MI who also develop cardiogenic shock.

3. Electrocardiography.

4. catheterization is very useful for helping exclude other causes and types of shock (e.g., volume depletion, obstructive shock) .

 Management of cardiogenic shock

1. Fluid resuscitation to correct hyporvolemia and hypotension, unless pulmonary edema is present.

2. pharmacologic therapy to maintain blood pressure and cardiac output

3. Early restoration of coronary blood flow

4. Correction of electrolyte and acid-base abnormalities (e.g., hypokalemia, hypomagnesaemia, acidosis)

5. provide vascular access for multiple infusions, and allow invasive monitoring of central venous pressure .

6. An arterial line may be placed to provide continuous blood pressure monitoring.

Nursing Interventions for carcinogenic shock

1. Continuously monitor oxygenation status with pulse oximetry.

2. Monitor for desaturation in response to nursing intervention.

3. Monitor fluid volume status.

4. Obtain HR, RR, and BP every 15 minutes to evaluate the patient's response to therapy and detect cardiopulmonary deterioration.

5. Assess the patient's respiratory status. The use of accessory muscles and inability to speak suggest worsening pulmonary congestion.

6. Review ABGs for decreasing trend in Pao2 (hypoxemia) or pH (acidosis). These conditions can adversely affect myocardial contractility.

7. Provide supplemental oxygen as ordered. If the patient develops respiratory distress, be prepared for intubation and mechanical ventilation.