

SNS COLLEGE OF NURSING
Saravanampatti (po), coimbatore

DEPARTMENT OF NURSING
HYPOVOLEMIC SHOCK



DEFINITION

“Shock is defined as a **state of circulatory inadequacy** with poor tissue perfusion resulting in generalized cellular hypoxia.”

- **Circulatory inadequacy is due to a *disparity* between the *circulating blood volume* and the *capacity of the circulatory bed*.**
- **The net effect of this disparity is *inadequate exchange of oxygen and carbon dioxide* between the *intra and extravascular compartments*.**



- The **stagnation of carbon dioxide** and other **metabolites** in the tissue leads to **metabolic acidosis** and **cellular death**.
- The series of changes observed in shock and their clinical manifestations, are therefore, dependent on **two sets of changes**:
 - a) **Circulatory inadequacy at the 'filtration level'**
 - b) **Cellular damage and ultimately death.**



HYPOVOLEMIC SHOCK

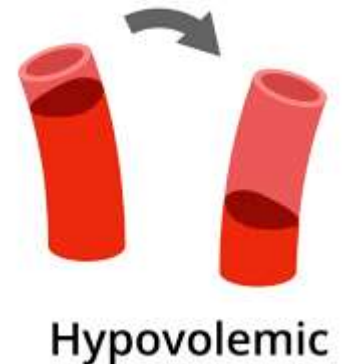
- **Circulating blood volume is inadequate resulting from acute depletion.**
- **It may be-**



PATHOPHYSIOLOGY OF SHOCK

➤ ***Pathophysiological changes in obstetric shock are predominantly associated with..***

- a) General changes due to hypovolemia***
- b) Specific changes due to liberation of endotoxin***



- **Hypotension** stimulates **release** of **neuroendocrine mediators** like **adrenocorticotrophic hormone (ACTH), Growth hormone (GH), β endorphin, cortisol and glucagon.**
- There is also **sympathoadrenal response.**
- Presence of endotoxin (lipopolysaccharide), in septic shock activates the leucocytes through complement system.



- There is **release** of **inflammatory mediators** such as protease, superoxide (O_2^-), hydroxy (OH^-) radicals, cytokines, prostaglandins and many cytotoxic enzymes.
- These interfere with the function of a number of enzyme systems and increase capillary permeability.



- **Cytokines** such as interleukines (ILS) and tumor necrosis factor (TNF) interact by autocrine and paracrine mechanism to cause **cellular** or **organ dysfunction**.
- In **presence of** hypoxia, sepsis and acidosis, **lysosomal enzymes** which are **cytotoxic**, are released.
- They can cause **myocardial depression** and **coronary vasoconstriction**.



CLINICAL FEATURES OF SHOCK

- ***Clinical features of shock depend on the basic etiological factors and consequently the sequence of pathological changes occurring within the microvascular unit.***
- ***In early, the features of hypovolemic and septic shock are different.***
- ***In the irreversal phase, the clinical features are the same as the final pathology is multiple organ failure.***
- ***It carries mortality of 30%-100%.***

PRINCIPLE OF MANAGEMENT:

- ***To correct the hemodynamic instability due to sepsis***
- ***Appropriate supportive care***
- ***To remove the source of sepsis***

- ✓ ***Two wide bore cannulas sited.***
- ✓ ***Foley's catheter.***
- ✓ ***Oxygenation with face mask is to be given.***
- ✓ ***Mechanical ventilation may be needed in severe cases.***

- ✓ ***Antibiotics***
- ✓ ***IV fluids and electrolytes***
- ✓ ***Correction of acidosis***
- ✓ ***Maintenance of blood pressure***
- ✓ ***Vasodilator therapy***
- ✓ ***Diuretic therapy***
- ✓ ***Corticosteroids***
- ✓ ***Treatment of diffuse intravascular coagulopathy***
- ✓ ***Treatment of myocarditis***
- ✓ ***Elimination of source of infection***
- ✓ ***Intensive insulin therapy***



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