



Department of Anesthesia Techniques

Lecture 7: - Cyanosis & Pallor for Anesthetists

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Pallor

Definition: condition in which a person's skin and mucous membranes turn lighter than they usually are. It is used as a screening tool to identify illness.



Types:

1. Acute and associated with a life-threatening illness.
2. Chronic and usually less severe and develop gradually

The degree of pallor depends on:

1. Concentration of hemoglobin in the blood.
2. Distribution of blood in blood vessels of the skin.

Clinically, pallor caused by anemia can usually need more medical intervention when the hemoglobin concentration is below 8 to 9 g / dL.

Pallor Causes

❖ Pallor without anemia

- shock (hypovolemic , cardiogenic) and syncope
- exposure to cold
- arterial occlusion
- others: as myxedema and thick skin (eg. scleroderma)



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❖ Pallor with anemia

The concentration of hemoglobin in the blood can be lowered by three basic mechanisms:

1. Decreased erythrocyte or hemoglobin production.

- Nutritional deficiency.
- Abnormal Hemoglobin synthesis.

2. Increased erythrocyte destruction.

- Erythrocyte membrane defects.
- Erythrocyte enzyme defects.
- Hemoglobinopathies.
- Immune hemolytic anemia

3. Blood loss.

- Severe trauma.
- Anatomic lesions

Cyanosis

Definition: Abnormal bluish discoloration of the skin and mucous membranes



• Causes of Cyanosis:

- High levels of **deoxygenated (reduced) hemoglobin** circulating within the superficial dermal capillaries.
- **Hypoxemia**, is the deficient oxygenation of blood that leads to cyanosis



Types of Cyanosis

1. Peripheral cyanosis:

Causes bluish discoloration of the hands and feet. it is the result of vasoconstriction and diminished peripheral blood flow from various causes.



2. Central cyanosis:

In addition to the hands and feet, it is apparent at the lips, tongue, and sublingual tissues.



Comparison:

- | Central | Peripheral |
|--|---|
| <ul style="list-style-type: none">• Skin & mucous membranes• Caused by decreased arterial oxygen sat. or abnormal hemoglobin• Exposed areas warm• Clubbing may be present | <ul style="list-style-type: none">• Peripheral exposed skin only• Caused by vasoconstriction or decreased blood flow• Exposed areas cold, massage/warming helps• No clubbing |



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CYANOSIS DURING ANESTHESIA

- CYANOSIS always means anoxaemia, (hypoxemia). Anoxaemia is frequent during anaesthesia.
- Cyanosis is an aid to the anesthetist in producing depth of anesthesia, and may help in determining the plan of anesthesia.
- It is one of the most potent factors making for immediate danger to the patient

Cyanosis during anesthesia is usually the result of **respiratory failure or upper airway obstruction** and must be addressed immediately

Capillary Refill Time (CRT)

- Capillary refill time is the rate of color return to a mucous membrane after the application of gentle pressure and reflects tissue perfusion.
- A prolonged CRT (> 2 sec) may indicate **hypotension** resulting from excessive anesthetic depth or circulatory shock.
- Other factors that may cause prolonged CRT or poor perfusion include **hypothermia, vasodilation and cardiac failure**