

CYANOSIS:

Definition: Cyanosis is the bluish discoloration of the skin and mucus membrane of the body due to the presence of reduced hemoglobin or deoxyhemoglobin in more than 5g% of the blood.

- Cyanosis is normally detected when O_2 saturation is less than 85%.
- It is also seen in excess of abnormal hemoglobin derivatives such as methemoglobin or sulfhemoglobin etc.

PHYSIOLOGICAL BASIS:

When the concentration of reduced hemoglobin is more than 5g% in the capillary blood, the skin and mucus membrane become blue because of dark colour of reduced hemoglobin.

- 1) When the concentration of reduced hemoglobin is more than 5g%, cyanosis appear
- 2) Cyanosis is absent in severe anemia and copious bleeding.
- 3) The presence of excess of other hemoglobin complexes such as methemoglobin and sulfhemoglobin in the blood also produced cyanosis because of their dark color.

TYPES OF CYANOSIS:

Cyanosis is of three types: peripheral, central, and mixed. There is another special category of cyanosis called differential cyanosis.

PERIPHERAL CYANOSIS:

This occurs due to slowing of the flow of blood through the tissue thereby allowing more time for removal of oxygen by the tissue.

CAUSES:

- 1) Decreased cardiac output, as occurs in heart failure.

- 2) Local vasoconstriction for example, extreme cold.
- 3) venous obstruction, for eg: superior vena cava syndrome.
- 4) Increased viscosity of blood as seen in polycythemia, multiple myeloma etc.
- 5) Arterial obstruction eg: peripheral vascular disease. (Buerger's disease)

CENTRAL CYANOSIS:

When reduced hemoglobin concentration is more than $5g\%$ due to mixing of Arterial blood with venous blood. Oxygenation of the Arterial blood, central cyanosis results.

CAUSES

- 1) Due to Admixture of venous and Arterial blood.
 - ⇒ Congenital heart disease - Fallot's tetralogy
 - ⇒ Pulmonary arteriovenous fistula.
 - ⇒ Patent Ductus Arteriosus.
 - ⇒ Transposition of great vessels.
- 2) Due to inadequate Oxygenation of Arterial blood
 - ⇒ Low Atm oxygen, common example is high Altitude
 - ⇒ Inadequate Ventilation, eg: lung collapse. Airway obstruction.
 - ⇒ Decreased gaseous exchange through the pulmonary membrane eg: hyaline membrane disease.

MIXED CYANOSIS - Both central and peripheral mechanism.

eg: Chronic or pulmonary due to emphysema.

Other Types:

- * Differential cyanosis
- * Intermittent cyanosis
- * Cyclical cyanosis
- * Orthocyanosis.