Objectives

- Recognize the physiologic changes occurring in the pulmonary system at birth and explain how these changes relate to findings observed during neonatal respiratory assessment.
- Identify the steps involved in differential diagnosis of respiratory distress in a neonate.
- Outline the causes and risk factors for respiratory distress in neonates.
- Summarize how pulse oximetry works and state when and how to appropriately use such monitoring.

Content Outline

1. Physiology of Respiratory Changes at Birth

2. Presentation of Respiratory Distress
   2.1 Chest retractions
   2.2 Nasal flaring
   2.3 Grunting
   2.4 Accessory respiratory muscles

3. Assessment of a Neonate with Respiratory Distress

4. Differential Diagnosis
   4.1 Upper airway anomalies
      4.1.1 CHARGE
      4.1.2 Laryngomalacia
   4.2 Pulmonary Diseases
      4.2.1 Transient tachypnea of the newborn
      4.2.2 Pneumonia
      4.2.3 Respiratory distress syndrome
      4.2.4 Meconium aspiration syndrome
      4.2.5 Bronchopulmonary dysplasia
      4.2.6 Interstitial lung disease
      4.2.7 Congenital lung disease

5. Historical Perspective of Pulse Oximetry

6. Physiological Principles of Pulse Oximetry

7. Oxygen Saturation Targets During Resuscitation
   7.1 Recent study findings
   7.2 Using pulse oximetry
   7.3 Oxygen target ranges
   7.4 Newborn resuscitation algorithm

8. Oxygen Saturation Targets During Neonatal Intensive Care
   8.1 Studies
   8.2 Effect on retinopathy of prematurity (ROP)
   8.3 Clinical trials

9. Technologic advances

Reading Material Resources – see next page
Neonatal Pulmonary Function

Reading Material Resources

Module WB1724: Neonatal Pulmonary Function is based on the resources listed below. A copy of the resources are included with the module.

Neonatal Respiratory Distress: A Practical Approach to its Diagnosis and Management, Pramanik, A., Pediatric Clinics of America, 2015, pp. 453-469.