Objectives

- Describe glucose concentration patterns in the normal newborn during the first days of life and define transitional neonatal hypoglycemia.

- Review fetal, transitional and neonatal circulatory patterns and contrast the differences between fetal and neonatal circulation.

- Summarize management approaches to the care of the newly-born preterm infant including appropriate ventilatory strategies and guidelines for thermoregulation in extremely preterm infants.

- Discuss the changes in oxygenation that occur moving from an intrauterine to and extraterine environment and outline the appropriate oxygen supplementation approaches for use in the immediate postnatal period.

Content Outline

1. Transitional Neonatal Hypoglycemia
   1.1 Patterns of glucose concentrations in normal newborns
   1.2 Transitional neonatal hypoglycemia in normal newborns
      1.2.1 Insulin secretion
      1.2.2 Association with inappropriate preservation of liver glycogen reserves
      1.2.3 Resemblance to congenital hyperinsulinemia
      1.2.4 Brain responses
   1.3 Beta cell insulin regulatory differences
   1.4 Glucose threshold for insulin release

2. Fetal and Transitional Circulation
   2.1 Cardiac anatomy
   2.2 Elements of circulatory physiology
   2.3 Fetal and transitional circulation
      2.3.1 Placenta
   2.4 MRI quantification of fetal circulation
   2.5 Elements of fetal circulation function
   2.6 Elements of preterm transitional circulation
      2.6.1 Fetal shunts
   2.7 Long term cardiac effects of preterm delivery

3. Managing Preterm Infants in the First Minutes of Life
   3.1 Placental transfusion immediately after birth
   3.2 Ventilator support
      3.2.1 Strategies
   3.3 Oxygen supplementation
      3.3.1 Oxygen in fetal life
      3.3.2 Pulse oximetry in the delivery room
      3.3.3 Postnatal oxygen saturation
      3.3.4 Titrating oxygen

4. Thermoregulation in the preterm newborn

Reading Material Resources

Module WB1743: Neonatal Transition is based on the resources listed below. A copy of the resources are included with the module.

Neonatal Transition
