Objectives

- Outline the structural & functional changes that occur within the renal system during pregnancy
- Describe the impact that pregnancy has upon key laboratory values associated with renal function
- Explain the role of the renin-angiotensin-aldosterone system in maintenance of fluid and electrolyte homeostasis as well as maintenance of arterial blood pressure
- Identify key nursing interventions used during pregnancy to address common clinical problems that are based upon renal system factors
- Contrast specific chronic renal conditions with related effects that occur as a result during pregnancy
- Recall the fetal development process for the renal system including the developmental basis for common anomalies

Content Outline

1. Maternal Physiologic Adaptations
   1.1 Renal system changes during pregnancy
      1.1.1 Renal calyces, pelvis & ureters
      1.1.2 Bladder
      1.1.3 Renal blood flow
      1.1.4 Glomerular filtration rate
      1.1.5 Renal tubular function
      1.1.6 Renin-angiotensin-aldosterone system
      1.1.7 Regulation of osmolarity

2. Intrapartum Renal System Alterations

3. Post Partal Renal System Alterations

4. Clinical Implications of Renal System Alterations During Pregnancy
   4.1 Dependent edema
   4.2 Urinary frequency
   4.3 Nocturia
   4.4 Urinary tract infection risk
   4.5 Inability to void postpartum

5. Fluid Needs During Labor

6. Maternal-Fetal Fluid & Electrolyte Homeostasis

7. Evaluation of Renal Function During Pregnancy

8. The Impact of Chronic Renal Disease During Pregnancy

9. Anatomic Development of Fetal Renal System
   9.1 Development of kidneys
   9.2 Development of urinary system

10. Functional Development of Fetal Renal System
Objectives continued

- Relate physiologic alterations in neonatal renal function to the implications for clinical management of the neonate.
- Describe the impact of altered renal function on the very low birthweight infant.

Content Outline continued

11. Neonatal Physiology
   11.1 Transitional events
   11.2 Body composition
   11.3 Urine output
   11.4 Renal blood flow
   11.5 Glomerular filtration
   11.6 Tubular function
       11.6.1 Sodium
       11.6.2 Glucose
       11.6.3 Other solutes
   11.7 Acid-base homeostasis
   11.8 Water balance
   11.9 Hormonal regulation

12. Clinical Implications for Neonatal Management
   12.1 Fluid & electrolyte balance
   12.2 Insensible water loss
   12.3 Urine water loss
   12.4 Sodium requirements for preterms

13. Imbalances
   13.1 Risk of overhydration & dehydration
   13.2 Hyponatremia
   13.3 Hypernatremia
   13.4 Hyperkalemia in preterm
   13.5 Late metabolic acidosis

14. Renal Function During Neonatal Illness

15. Maturational Changes in Renal Function

Reading Material Resources

This self assessment module is based on the resources listed below.

The reading materials are in the form of a PDF file and can be accessed from the online testing center once the module is purchased.