

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

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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

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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. Maturation 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.

Chapter 11, Renal System and Fluid and Electrolyte Homeostasis, Maternal, Fetal & Physiology: A Clinical Perspective, Blackburn, et al., Saunders, Elsevier, St. Louis, 2007, pages 375-414.