



Chronic Diseases Involving the Cardiovascular and Renal Systems

Background

Chronic diseases have emerged as leading contributors to maternal morbidity and mortality, particularly in the postpartum period. All of these conditions increase the risk of maternal, fetal, and neonatal complications such as preterm birth and preeclampsia.

Screening

For recommended screening tests, laboratory tests, imaging studies, and other diagnostic tests, see [table](#).

Follow-up

Women with chronic medical conditions can have an exacerbation of their illnesses in the immediate postpartum period. These women may benefit from a visit within 2–4 weeks after delivery for evaluation, coordination of care, and treatment optimization. A multidisciplinary approach and care coordination using a patient-centered medical home care model will enhance a continuous, comprehensive care model that is managed by a team leader or health care navigator. Reproductive life planning conversations that should have been initiated during pregnancy should now be implemented to prevent unplanned, close-interval pregnancy.

Resources

Health Care Provider Resources for Patient Care

- ❖ Auger N, Fraser WD, Schnitzer M, Leduc L, Healy-Profitos J, Paradis G. Recurrent preeclampsia and subsequent cardiovascular risk. *Heart* 2017;103:235–43.
Study of recurrent preeclampsia and long-term cardiovascular hospitalization.
- ❖ BMJ Publishing Group Ltd, British Cardiovascular Society. *Heart*. Available at: <http://heart.bmj.com/>. Retrieved March 6, 2018.
Heart is an international peer-reviewed journal that keeps cardiologists up-to-date with important research advances in cardiovascular disease.
- ❖ Brickner ME. Cardiovascular management in pregnancy: congenital heart disease. *Circulation* 2014;130:273–82.
- ❖ Huang C, Chen S. Acute kidney injury during pregnancy and puerperium: a retrospective study in a single center. *BMC Nephrol* 2017;18:4.
Study to investigate the incidence, characteristics, and outcomes of acute kidney injury during pregnancy and puerperium in a Chinese population.

- ❖ Williams D, Davison J. Chronic kidney disease in pregnancy. *BMJ* 2008;336:211–5.
- ❖ Wong JA, Rexrode KM, Sandhu RK, Conen D, Albert CM. Number of pregnancies and atrial fibrillation risk: the women’s health study. *Circulation* 2017;135:622–4.

Coding

See [Coding for Chronic Diseases Involving the Cardiovascular and Renal Systems](#)

Table 1. Chronic Conditions in the Postpartum Period

Condition	Background	Postpartum Test or Screening	Management Considerations	Follow-up Goals
Valvular heart disease	Congenital or rheumatic in origin	Pulse oximetry, daily weight, blood pressure, and pulse assessment auscultation, echocardiography and electrocardiography because arrhythmia also can be part of complex	Resolving physiologic changes may continue to place extra demands on function, multidisciplinary team approach Optimization of medications in the setting of breastfeeding*	Optimization of functional status, evaluate need for valvuloplasty or replacement
Atherosclerosis and ischemic heart disease	Comorbidities including obesity, and diabetes may increase risk of angina or myocardial infarction, or both	Pulse oximetry, daily weight, blood pressure, and pulse assessment auscultation in the immediate postpartum period Echocardiography, electrocardiography, stress testing, and cardiac catheterization, as needed, depending on baseline status	Optimization of medications in the setting of breastfeeding, including when to resume antilipids such as statins* Stent placement or bypass surgery	Management of comorbidities Weight control, nutritional consultation
Cardiomyopathy	Congenital, acquired, or peripartum Women may experience exacerbation in the postpartum period	Pulse oximetry, daily weight, blood pressure, and pulse assessment Serial echocardiography, B-Type Natriuretic Peptide Assay will help evaluate recovery of cardiac function	Multidisciplinary approach Medication optimization while breastfeeding, including inotropic agents, afterload reduction, and possible anticoagulants*	Optimization of functional status
Atrial fibrillation	Valvular or nonvalvular/idiopathic	Pulse oximetry, daily weight, blood pressure, and pulse assessment Electrocardiography, Holter monitor, electrophysiology studies may be needed ChA ₂ DS ₂ VASc score to assess stroke risk	Multidisciplinary approach Medication optimization while breastfeeding including antiarrhythmics and anticoagulation*	Optimization of functional status, electrophysiology studies
Nephrotic or nephritic syndrome	Idiopathic or related to underlying collagen vascular disorder or vasculitis Renal disease may worsen if pregnancy was complicated by preeclampsia	Daily weight, blood pressure assessment, renal function assessment As an outpatient, renal ultrasonography and protein-creatinine ratio, electrolytes, and other blood chemistries may be indicated to evaluate postpartum renal function and resolution of pregnancy-related impairment. A renal biopsy may be indicated.	Multidisciplinary approach Medication optimization while breastfeeding including biologics, steroids, and anticoagulation*	Optimization of renal function in the context of potential multiorgan involvement
Renal insufficiency	May result from acute or chronic insults Pregnancy-related insults include preeclampsia, hemolytic uremic syndrome, thrombotic thrombocytopenic purpura	Daily weight, monitor input and urinary output, blood pressure assessment, assessment of serum and urine electrolytes A renal ultrasound examination or renal biopsy, or both, may be indicated.	Multidisciplinary approach May need dialysis Medication optimization while breastfeeding*	Optimization of renal function: may require transplant
Renal transplant	Renal failure related to underlying vasculopathy, collagen vascular disorder, or vasculitis Hypertension may be present	Daily weight, monitor input and urinary output, blood pressure assessment, assessment of serum and electrolytes, renal ultrasound examination, renal biopsy	Multidisciplinary approach Medication dosages of antirejection/biologics will require levels and dosage changes	Transplant maintenance monitoring for rejection
Thyroid disease	Uncontrolled thyroid disease is associated with cardiovascular disease, arrhythmia, and depression Postpartum thyroiditis can occur in women who did not have thyroid disease	Monitor for symptoms of hyperthyroidism or hypothyroidism Repeat thyroid function tests at the postpartum visit	Adjust thyroid medication Referral for specialist treatment for women with newly diagnosed thyroid disease	Normalization of thyroid function tests Resolution of symptoms of thyroid dysfunction
Autoimmune disorders	Uncontrolled autoimmune disorders are associated with chronic morbidity, poor quality of life, disability and, in some cases, increased risk of cardiovascular disease The postpartum period may be marked by a flare of disease activity	Women should be asked about symptoms of a flare in the postpartum period	Multidisciplinary approach Medication optimization while breastfeeding* Medication dosages changed or adjusted as appropriate If underlying disorder affects activities of daily living, consider occupational therapy consultation to assist the woman in caring for her infant	Decrease disease activity Improve functional status Optimization of risk factors for cardiovascular disease.

*Consult LactMed for up-to-date information on individual medications.