“Community-Acquired Pneumonia in Pregnancy”
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1. Should all pregnant women who smoke or are diabetic be given pneumococcal vaccine? Does this recommendation apply to women with gestational diabetes? Should we be recommending pneumococcal vaccine to all women of reproductive age who smoke or are diabetic? Is there evidence demonstrating the cost-effectiveness of these recommendations?

Response from Drs. Jeanne S. Sheffield and F. Gary Cunningham:

The Advisory Committee on Immunization Practices (ACIP) updated the recommendations for the use of the 23-valent pneumococcal polysaccharide vaccine in adults for the prevention of invasive pneumococcal disease in December, 2008 (http://www.cdc.gov/vaccines/recs/provisional/downloads/pneumo-Oct-2008-508.pdf). New provisional recommendations now include persons aged 19 through 64 years who smoke cigarettes and those persons who have asthma on the list of adults who should receive the pneumococcal vaccine. Women aged 2–64 years with chronic illnesses such as cardiovascular disease, chronic pulmonary disease, diabetes mellitus, alcoholism, chronic liver disease, and cerebrospinal fluid leaks, as well as women with functional or anatomic asplenia or who are
immunocompromised should also receive the 23-valent pneumococcal polysaccharide vaccine. (Centers for Disease Control and Prevention. Prevention of pneumococcal disease: recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 1997;46[No. RR-8].) Women with gestational diabetes alone are not considered to have a chronic illness and should not be given a pneumococcal vaccine. Limited data are available regarding cost-effectiveness of these recommendations in pregnancy.

2. It seems acceptable to treat healthy pregnant women with community acquired pneumonia as outpatients. Since the initial choice of treatment is empirical, is it reasonable to prescribe macrolide monotherapy to a healthy, reliable patient who calls the office to report a productive cough and no other symptoms of pneumonia?

Response from Drs. Jeanne S. Sheffield and F. Gary Cunningham:

Outpatient management of healthy pregnant women with community acquired pneumonia is an acceptable alternative in specific patient populations. However, the diagnosis of pneumonia and the decision to treat as an outpatient requires a physical examination and chest radiograph. The 2007 Infectious Diseases Society of America/American Thoracic Society Consensus Guidelines on the Management of Community-Acquired Pneumonia in Adults (Mandell LA, Wunderink RG, Anzueto A, Bartlett JG, Campbell GD, Dean NC., et al. Infectious Disease Society of America/American Thoracic Society Consensus Guidelines on the Management of Community-Acquired Pneumonia in Adults. CID 2007;44:S27-72.) offer guidelines for deciding inpatient versus outpatient management in nonpregnant individuals. The decision is based on physical signs and symptoms as well as a chest radiograph, requiring an office visit. Empirical therapy after a phone consultation alone is not recommended and should be discouraged in this milieu of increasing antimicrobial resistance.
3. What is the best method for identifying superimposed bacterial pneumonia in pregnant women with viral pneumonia? In light of the typical poor response of primary influenza pneumonia to antiviral therapy, is there any benefit to immediate concurrent antibiotic therapy?

Response from Drs. Jeanne S. Sheffield and F. Gary Cunningham:

Secondary or superimposed bacterial pneumonia usually presents 4-14 days post clinical improvement from a viral illness, for example, influenza. Recrudescence of fever is associated with increased sputum production, cough, pulmonary consolidation on physical examination, and chest radiograph abnormalities. However, in the setting of an influenza outbreak, bacterial pneumonia may present concurrently as the viral infection is starting to resolve. Bacterial pneumonia superinfection, while an important and often severe complication, does not commonly occur. Thus, empiric treatment without a confirmed diagnosis is not recommended – however, a high index of suspicion for secondary pneumonia will allow early diagnosis and treatment.

4. The high rates of preterm labor in pregnant women with community-acquired pneumonia is concerning. Are there benefits to the fetus of antenatal steroid administration in preparing for a possible preterm birth in women with community acquired pneumonia? Do antenatal steroids for the fetus have any effect—positive or negative—on maternal outcome of treatment of community-acquired pneumonia in pregnancy?

Response from Drs. Jeanne S. Sheffield and F. Gary Cunningham:

Preterm labor and delivery does remain a major complication of pneumonia in pregnancy. The use of antenatal corticosteroid administration for fetal lung maturity alone is an interesting question that has not been evaluated, and, with this paucity of evidence, is not recommended currently. Corticosteroids have been shown in several studies to improve respiratory function in
nonpregnant individuals with viral infection, by decreasing the host inflammatory response and improving oxygenation. If used, it is usually in the critical care setting. A recent systemic review of the role of corticosteroids in severe community-acquired pneumonia, however, did not support corticosteroid use, although no pregnancy studies were included. (Salluh J IF, Póvoa P, Soares M, Castro-Faria-Neto HC, Bozza FA, Bozza PT. The role of corticosteroids in severe community-acquired pneumonia: a systematic review. Critical Care 2008;12:R76.) The use of systemic steroids for community-acquired pneumonia in pregnancy still needs to be studied.

5. Physiologic adaptations during pregnancy increase susceptibility to pulmonary infections. Is there maternal benefit from delivery of a viable fetus in a critically ill woman with community acquired pneumonia?

Response from Drs. Jeanne S. Sheffield and F. Gary Cunningham:

Physiologic adaptations during pregnancy do increase susceptibility to pulmonary infections. However, once a pregnant woman is infected, would iatrogenic delivery improve outcomes in a critically ill woman with community-acquired pneumonia? At first glance, this may appear reasonable. Over time, minute ventilation would decrease and functional residual capacity would return to normal. The pregnancy-associated increase in oxygen requirements would also return to baseline. Upon further consideration, one must remember that a critically ill woman, especially one who is hypoxic, does not respond well to added interventions such as labor induction. Increased maternal and fetal morbidity and mortality may ensue. Labor induction should be reserved for those women with imminent maternal death or cardiac arrest unresponsive to resuscitation.
6. Fetal growth restriction is more likely to occur in women with antepartum community-acquired pneumonia. Is antenatal testing of fetal growth and well-being recommended for women who had community-acquired pneumonia earlier in their pregnancy? For women who had antepartum community-acquired pneumonia and were critically ill? Are there any neonatal outcomes other than growth restriction and low birth weight affected by antepartum community-acquired pneumonia?

Response from Drs. Jeanne S. Sheffield and F. Gary Cunningham:

Fetal growth restriction has been associated with antepartum community-acquired pneumonia but this association is complicated by a number of confounding factors. Women who develop community-acquired pneumonia are more likely to smoke tobacco, use illicit drugs, or have chronic medical conditions. These factors are also associated with fetal growth restriction, making a simple cause-effect analysis difficult. Antepartum fetal testing should be reserved for current obstetric indications, not specifically for early pregnancy community-acquired pneumonia.