Editorials

Immunizations in Pregnancy: Updated Recommendations

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Vaccinations are a critical topic for family physicians to address with pregnant women because of the significant benefits to the mother and infant and the current low vaccination rates during pregnancy.[1] In a Centers for Disease Control and Prevention (CDC) survey during the 2017-2018 influenza season, only 49.1% of pregnant women reported receiving an influenza vaccination, whereas 54.4% reported receiving a tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccination.[1] Important new data on the immunology of immunization in pregnancy provide greater support for and information on the provision and timing of these immunizations.

Immunizations to Target

Influenza infection increases the risk of many serious complications in pregnant women and newborns, including premature labor and delivery, intrauterine fetal demise, need for hospitalization, and congenital defects.[2,3] As a result, and because the influenza vaccine is safe for use during pregnancy, vaccination in any trimester during influenza season is an essential part of prenatal care. A recent multinational study found that the influenza vaccine is 40% effective in preventing influenza-associated hospitalizations in pregnant women.[4] Physicians play a crucial role in ensuring vaccination. During the 2017-2018 influenza season, influenza vaccination coverage during pregnancy was considerably higher when the physician recommended or offered it (median of 42.8%) compared with when the physician did neither (median of 9%).[1]

Because the highest rates of serious morbidity and mortality from pertussis infection are among infants younger than three months, the Tdap vaccine should be provided during each pregnancy regardless of prior immunization status. Tdap vaccination in any trimester is safe, but the third trimester is preferred.[5,6] Reasons to vaccinate a pregnant woman earlier than 27 weeks' gestation include an unknown or incomplete vaccination history, inconsistent prenatal care follow-up, or as part of routine wound care management when tetanus booster is indicated.[6] The Tdap vaccine should be administered immediately postpartum in any woman who has not previously received it or who last received it more than 10 years earlier. If Tdap vaccination history cannot be confirmed through medical records, the patient should be considered unvaccinated and should receive a Tdap vaccine.

Maternal antibody production following influenza and Tdap vaccination requires two weeks to reach titers high enough to ensure protective maternal immunity and passive fetal transfer.[5,7] Therefore, the third trimester is the ideal time for vaccination from the perspective of fetal or newborn immunity. This schedule allows enough time for maternal antibodies to reach adequate levels and to be transferred while ensuring that antibody levels remain high in the newborn as close to the scheduled initial vaccination series as possible (e.g., two and four months for pertussis). Thus, the CDC recommends Tdap vaccination in the third trimester of pregnancy, ideally between 27 and 36 weeks' gestation.[4] However, passive immunity from maternal vaccination often wanes before a newborn receives recommended immunizations. Vertically transmitted protective antibodies in newborns can wane in just weeks, well before they have received at least two doses of influenza or Tdap vaccine and are considered adequately vaccinated. It may be theoretically beneficial to the newborn for mothers to obtain influenza vaccination during the third trimester of pregnancy, but the risk of maternal infection is too great to delay immunization.[6,7]

Immunizations to Consider

Hepatitis A, hepatitis B, and meningococcal immunizations should be considered in pregnant women with any risk factor for these diseases, as outlined by the CDC at https://www.cdc.gov/vaccines/vac-gen/side-effects.htm. The risk of disease in these patients typically outweighs the theoretical risk of inactivated vaccines, which have not been shown to be harmful during pregnancy.[8]

Immunizations to Avoid

Live attenuated vaccines are not recommended in pregnant women based on the theoretical

possibility of live virus exposure. This recommendation is not based on documented harm from pregnant women inadvertently receiving live vaccines. Based on data from CDC Vaccine in Pregnancy registries demonstrating no reported cases of congenital rubella or varicella, inadvertent measles-mumps-rubella or varicella vaccination in pregnancy should not be considered grounds for pregnancy termination.[9-11]

Human papillomavirus and herpes zoster vaccines are not live vaccines; however, they are currently not recommended during pregnancy because of a lack of safety data and not because of documented risk.

Yellow fever immunization is the exception to the rule that live, attenuated vaccines should be avoided during pregnancy. The CDC recommends yellow fever vaccine during pregnancy if the woman must travel and is at high risk of infection based on location, season, and planned activities.[12]

Immunizations for the Future

Immunizations against group B streptococcus and respiratory syncytial virus are in development for pregnant women, with the goal of protecting against these leading causes of severe infections in infants.[13]

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