

Bordetella pertussis during pregnancy: do we need to increase vaccination?

Gebelikte bordetella pertussis: Aşılamayı artırmamız gerekir mi?

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Dear Editor

While pertussis caused by *Bordetella pertussis* often proceeds asymptotically in adults, its occurrence within the first 2 months in infants, who cannot generate their own antibodies, leads to serious morbidity and mortality (1). Coughing fits, sensation of inspiratory suffocation, and post-coughing vomiting are classic symptoms in unvaccinated children under 10 years old (2). Information regarding pertussis during pregnancy is limited. We wanted to raise awareness on this issue by sharing our clinical approach to managing a pregnant patient diagnosed with pertussis in the third trimester.

A 22-year-old primigravida at 36 weeks and 4 days of an uncomplicated antenatal follow-up presented with increasing nocturnal cough complaints. The patient did not report fever, chills, or shivering. Considering the predominant symptoms as suggestive of atypical upper respiratory tract infection (URTI), the patient was started on cephalosporin and bronchodilator therapy. As the patient did not show improvement after one week of treatment and her general condition deteriorated, she was planned for hospitalization. *Bordetella pertussis* positivity was detected in the respiratory panel test conducted at this stage. Azithromycin was added to the treatment, and droplet isolation was initiated. Active labor began spontaneously 22 days after the onset of symptoms (at 39 weeks and 5 days), and a cesarean section was performed due to breech presentation. To protect the baby, breastfeeding with a mask was recommended, and both the mother and the baby were discharged on postoperative day 2. No illness was detected in the newborn during follow-up.

In a previous study, it was reported that both symptoms (cough, post-cough vomiting) and the need for hospitalization were similar in pregnant and non-pregnant individuals. The study also emphasized that half of the cases were diagnosed in the third trimester. When the babies of 30 patients diagnosed in the third trimester were examined, a perinatal transmission rate of 10% (n=3/30) was found. In summary, there is evidence that pertussis contracted during pregnancy does not increase maternal and fetal complications (3).

Advisory Committee on Immunization Practices (ACIP) recommends routine vaccination for tetanus, diphtheria, and pertussis. Infants and young children are recommended to receive a 5-dose series of diphtheria and tetanus toxoids and acellular pertussis (DTaP) vaccines, with one adolescent booster dose of tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccine. Adults who have never received Tdap also are recommended to receive a booster dose of Tdap. Women are recommended to receive a dose of Tdap during each pregnancy, which should be administered from 27 through 36 weeks' gestation, regardless of previous receipt of Tdap. After receipt of Tdap, adolescents and adults are recommended to receive a booster tetanus and diphtheria toxoids (Td) vaccine every 10 years to assure ongoing protection against tetanus and diphtheria (4, 5).

In a meta-analysis that was conducted, in infants of Tdap-immunized women, two-fold higher levels of anti-pertussis toxin (PT) and anti-diphtheria-toxoid (DT) IgG pre-primary immunization were associated with 9% and 10% lower post-primary immunization levels (6).

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Vaccines containing pertussis have been safely used in many countries for many years. The efficacy of pertussis vaccines is reported to be over 90% (7, 8). In our country, pertussis vaccines are routinely administered in childhood, but routine pertussis vaccination is not performed in pregnant women. In Turkey, the Ministry of Health administers Td vaccine starting from the second trimester as at least 2 doses in the vaccine program.

While there are many strategies to prevent pertussis in early infancy, the most appropriate and cost-effective is undoubtedly maternal vaccination. We believe that administering the pertussis vaccine after the second trimester can increase newborn immunity rates. Additionally, vaccination in early pregnancy can reduce the risk of maternal disease development.

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