Clinical Clues / *Klinik İpuçları*

DOI: 10.5578/ced.20229774 • *J Pediatr Inf 2022;16(3):e215-e217*

Td/Tdap Vaccine Recommendation in a Previously Healthy Adolescent Pregnant?

Önceden Sağlıklı Ergen Gebede DT/dabT Aşı Önerisi

Fatma Dilşad Aksoy(İD), Mustafa Kemal Hacımustafaoğlu(İD)

Division of Pediatric Infectious Diseases, Department of Pediatrics, Uludağ University Faculty of Medicine, Bursa, Türkiye

Question: *A 17.5-year-old, pregnant adolescent patient (five months pregnant) was referred with complaints of urinary tract infection. In her history, she had Td vaccine in the 2nd month of her pregnancy about one year ago. And spontaneous abortion occurred after three weeks. She was referred for the evaluation/ indication of the Td/Tdap vaccine. Is it necessary to vaccinate, can there be a risk of miscarriage again, if so, how should the pregnancy vaccination schedule be?*
Md. Ayşe Öztürk

Cite this article as: Aksoy FD, Hacımustafaoğlu MK. Td/Tdap vaccine recommendation in a previously healthy adolescent pregnant? J Pediatr Inf 2022;16(3):e215-e217.

Answer (Fatma Dilşad Aksoy, MD; Mustafa Kemal Hacımustafaoğlu, MD)

Introduction and general information: According to the 2018 Hacettepe University Population and Health Survey report, of the married women between 25-49 age group; 39% get married before the age of 20, 21% before the age of 18 and 4% before the age of 15 (1). Child/adolescent pregnant women carry a higher risk (such as eclampsia, puerperal endometritis, systemic infections, as well as low birth weight, prematurity, development of serious newborn problems in their babies) compared to normal adult 20-24 year old pregnant women. According to the WHO report, in 2019, abortion was reported at a rate of 55% in unplanned pregnancies in adolescents, especially in countries with limited resources (2). For this reason, it would be appropriate to prevent child/adolescent pregnancies if possible. If this is not possible, careful health monitoring should be performed when such a situation is encountered. It would be appropriate for the pediatrician who evaluates the child/adolescent pregnant patient to keep in mind that there may be legal problems in this regard, and to seek consultation from social pediatrics when necessary.

In this article, the vaccination of child/adolescent pregnant women is evaluated within the framework of general pregnant vaccination principles. Therefore, in this article, the term of pregnant vaccination will be used in general.

Administration of live attenuated vaccines is contraindicated during pregnancy. Inactivated vaccines, in general, are also postponed until the end of pregnancy unless there is an emergency conditions or an absolute indication (such as rabies suspected animal bite, risky contact cases such as hepatitis B, hepatitis A, inactive polio, meningococcus).

However, inactivated influenza vaccine (IIA), adolescent/ adult type diphtheria-tetanus (Td) or adolescent/adult type diphtheria-pertussis-tetanus (Tdap) vaccines, COVID-19 mRNA vaccines are indicated and recommended during pregnancy (3,4).

Correspondence Address / Yazışma Adresi
Mustafa Kemal Hacımustafaoğlu
Uludağ Üniversitesi Tıp Fakültesi,
Çocuk Sağlığı ve Hastalıkları Anabilim Dalı,
Çocuk Enfeksiyon Hastalıkları Bilim Dalı,
Bursa-Türkiye
E-mail: mkemal@uludag.edu.tr

Received: 03.08.2022 **Accepted:** 28.08.2022 **Available Online Date:** 29.09.2022

It is recommended that all pregnant women receive the Tdap vaccine at least once during their pregnancy. In addition to protecting the pregnant woman, Tdap vaccine given to the pregnant shows a protective effect against whooping cough in the 2-3 months period until TDP vaccines are administered to the baby, by the way of the protective maternal antibodies passed from the mother to the baby. In this context, the most appropriate time for Tdap vaccine to be given during pregnancy is the 3rd trimester (preferably between 27-36 weeks of gestation) (5). Thus, the highest level of protective antibody transmission to the unborn baby can be achieved. According to CDC data, it has been reported that the Tdap vaccine administered in the 27-36 weeks of the pregnancy, reduces pertussis disease by 78% in the first two months of their infants, and it reduces the infant hospitalizations due to whooping cough by 90% (6-8). If the mother has not been vaccinated with Tdap before or during pregnancy, it should be administered as soon as possible after delivery.

It is also recommended that other persons and adults who will encounter the baby after birth should be vaccinated with Tdap at least two weeks before the baby is born (or before having the contact of the baby) (such as the father and other household members). It is recommended that the Tdap vaccine be administered in every pregnancy (even if it has been given in previous pregnancies). The Tdap vaccine is one of the safest vaccines. The Tdap vaccine repeated in every pregnancy has no serious side effects to the pregnancy outcomes (9).

Even if a pregnant woman visits the doctor for any other reason, the physician should also plan the pregnancy vaccination schedule for Tdap/Td (preferably Tdap), inactive influenza (IIA) and COVID-19 by informing the pregnant woman and create a rational pregnant vaccination schedule (3,10). Briefly, IIA should be performed at the beginning of the influenza season, regardless of the gestational age. COVID-19 mRNA vaccines can be administered at any time of pregnancy and in accordance with the recommended schedule. Tdap vaccine, can preferably be employed between 27-36 weeks of pregnancy, to ensure the most appropriate antibody transmission to the baby (8). Even if the Td or Tdab vaccine was given in the previous pregnancy, Tdap vaccine should be repeated in the next pregnancy again. In addition to the vaccines routinely administered during pregnancy, the vaccination card of the pregnant woman should be reviewed, and missing vaccines, if any, should be documented. A catch-up program should be established after birth by informing the family, and the missing vaccines, should be completed. If the pregnant woman does not have a vaccination card before, a new vaccination card should be issued in this regard. Apart from this, it should be recommended that close contacts of the baby to be born should be up-to-date in terms of routine vaccinations, especially pertussis vaccine.

In our country, it is recommended to administer at least two doses of Td vaccine during pregnancy to pregnant women who have never been vaccinated before (first dose in the 4th month pregnancy, and the 2nd dose at least four weeks after first dose and two weeks before delivery). Then (for the pregnant women who have never been vaccinated), 3rd Td dose at least six months after the 2nd dose, 4th Td dose at least one year after the 3rd dose, or in the next pregnancy, the 5th Td dose at least one year after the 4th dose or in the next pregnancy, to be completed diphtheria-tetanus vaccinations. Then, it is continued as a Td boosters every 10 years (4,11,12). In the USA, according to ACIP and CDC recommendations, for unvaccinated or undocumented pregnant women, a total of three doses of Td/Tdab vaccine, at least one of which is Tdap (preferably between the 27-36 weeks of pregnancy), is recommended. Accordingly, the first dose is given at the first visit, the second dose is administered four weeks later, the third dose is given 6-12 months after the second dose, and the vaccination schedule is completed in three doses (3,8).

In our country, currently, Tdap vaccine is not included in the national pregnant vaccination program. The introduction of Tdap vaccination to pregnant women as soon as possible is extremely important in terms of protecting babies from pertussis, especially in the first a few months. The Tdap vaccine in pregnancy is only available if families agree to pay the price of Tdap vaccine from their own means.

The Tdap or Td vaccine has not been reported to cause abortion. Therefore, the abortion history, probably not related to the Td vaccination. It is also known that unplanned pregnancies, especially in children/adolescents, are more risky than normal pregnancies, and spontaneous abortion develops in more than half of them. So, it is not rational to attribute abortion to the Td (or Tdap) vaccine. For this reason, it is strongly recommended to employ preferably Tdap vaccine in the next pregnancy, between the 27-36 weeks of pregnancy.

Within the framework of these general approaches, the answer to the question is: It is not rational that the abortion that developed because of the Td vaccine in the previous pregnancy. This reality should be explained to the family. If the family afford it, it will be suitable to recommend Tdap vaccine to the pregnant patient between 27-36 weeks of pregnancy (in September 2022, current prices of different Tdap vaccines in Turkey are between 204-292 TL, approximately 11-16 USD, and 11-16 Euro). If they cannot afford it, the Td vaccine should be given after the 4th month of pregnancy (after the 16th week). The patient should also be offered IIA and COVID-19 mRNA vaccines. The patient's vaccination history and records should

be examined, a vaccination card should be prepared, and all vaccines should be complete and up-to-date after delivery.

References

1. *Türkiye Nüfus ve Sağlık Araştırması (TNSA), 2018 Raporu. Available from: https://fs.hacettepe.edu.tr. (Accessed date: 28.09.2022).*
2. *Adolescent Pregnancy. Available from: https://www.who.int/news-room/fact-sheets/detail/adolescent-pregnancy, (Accessed date: 28.09.2022).*
3. *Yawetz S. Immunizations during pregnancy. (Eds: Lockwood C, Weller P, DE: Bogorodskaya M, Chakrabarti A). UpToDate. Available from: https://www.uptodate.com/contents/immunizations-during-pregnancy. (Accessed date: 28.09.2022).*
4. *Boran P, Gökçay G, Gebe aşılamasının önemi nedir?, 30 Soruda Aşı Kitabı (Editörler; Badur S, Camcıoğlu Y), İstanbul, Selen Yayıncılık 2017, p. 275-282.*
5. *Updated Recommendations for Use of Tetanus Toxoid, Reduced Diphtheria Toxoid, and Acellular Pertussis Vaccine (Tdap) in Pregnant Women-Advisory Committee on Immunization Practices (ACIP), 2012, Available from: https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6207a4.htm, (Accessed date: 28.09.2022).*
6. *Pregnancy and Whooping Cough, Available from: www.cdc.gov/pertussis/pregnant/research.html, (Accessed date: 28.09.2022).*
7. *Liang JL, Tiwari T, Moro P, Messonnier NE, Reingold A, Sawyer M, Clark TA. Prevention of Pertussis, Tetanus, and Diphtheria with Vaccines in the United States: Recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR Recomm Rep 2018;67(2):1-44. https://doi.org/10.15585/mmwr.rr6702a1 (Accessed date: 28.09.2022).*
8. *Diphtheria, Tetanus, Pertusis. Available from: https://www.immunize.org/askexperts. (Accessed date: 28.09.2022).*
9. *Diphtheria and tetanus toxoids and acellular pertussis vaccines (DTaP [age <7 years] and Tdap [age ≥7 years]): Pediatric drug information, UpToDate Available from: https://www.uptodate.com. (Accessed date: 28.09.2022).*
10. *Edwards KM, Orenstein WA. COVID-19 Vaccines. (Eds: Hirsch M, DE: Bloom A). UpToDate. Available from: https://www.uptodate.com/contents/covid-19-vaccines. (Accessed date: 28.09.2022).*
11. *2011 Sağlık Bakanlığı Aşı Genelgesi, 2011 Available from: https://dosyasb.saglik.gov.tr. (Accessed date: 28.09.2022).*
12. *Özelçi P, Özdemirer Ü, Coşkun A, Ata Z, Uslu G. Türkiye'de Genişletilmiş Bağışıklama Programı (GBP), Aşı ve Bağışıklama Kitabı (Editörler; Kara A, Çiftçi E, Tezer H, Somer A), Ankara, Selen Yayıncılık 2021 p. 55-88.*