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&
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Rubella Vaccination During Pregnancy Trabzon Turkey 2009

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OBJECTIVES: The Turkish Republic of Health Ministery achieved a vaccination program to eliminate both the congenital and acquired forms of rubella infection. The immunisation program has been quite successful. However 57 women have inadvertently received this vaccine while pregnant. Our aim was to investigate whether there was any risk to the fetus from rubella vaccine.

STUDY DESIGN: A total of 57 women who have inadvertently received rubella vaccine after conception at the first and second trimester were prospectively followed during pregnancy by collecting data about the outcomes of their births. The data were compared with those of pregnant women (control group, n=54) who not received rubella vaccine and who delivered in the same immunisation program period.

RESULTS: There were no significant differences between the maternal and gestational ages of the pregnant women who received rubella vaccine (median age 30 years, gestational age 12 weeks) and those of the pregnant women who not received rubella vaccine (median age 31 years, gestational age 12 weeks), (p>0.05, p>0.05, respectively). There was no significant difference in among the groups by regard to gravidity and parity (p>0.05, p>0.05, respectively). The mean Rubella IgG avidity test was found to be 94 indicating past infection or infection that occurred before several weeks. None of the fetus had been affected by reinfection with the rubella virus or none of the infants was born with congenital rubella syndrome.

CONCLUSION: Although the rubella vaccination does not seem to be risky in early pregnancy, the pregnancy test should be taken to all women who wants to rubella vaccination or all women should be counseled to avoid becoming pregnant for 1 month after vaccination.

Key Words: Rubella, Vaccine, Pregnancy

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Introduction

Rubella, commonly known as German measles, is a disease caused by the rubella virus. If the mother is infected within the first 20 weeks of pregnancy, the child may be born with congenital rubella syndrome (CRS), which entails a range of serious incurable illnesses. Spontaneous abortion occurs in up to 20% of cases.[1] The syndrome congenital rubella syndrome (CRS) comprises cardiac, cerebral, ophthalmic and auditory defects.[2] It may also cause prematurity, low birth weight, and neonatal thrombocytopenia, anaemia and hepatitis. The risk of major defects or organogenesis is highest for infection in the first trimester. CRS is the main reason a vaccine for rubella was developed. Many mothers who contract rubella within the first critical trimester either have a miscarriage or a still born baby. If the baby survives the infection, it can be born with severe heart disorders (PDA being the most common), blindness, deafness, or other life threatening organ disorders. The skin manifestations are called "blueberry muffin lesions.[3]

Rubella infections are prevented by active immunisation programs using live, disabled virus vaccines. But occasionally, women might not be aware that they are pregnant when they are vaccinated and then they panic upon learning of the pregnancy. Others might accidentally get pregnant sooner than one month after receiving the MMR vaccine. Our aim was to investigate whether a risk at accidental vaccination during pregnancy.

Material and Method

A total of 57 women who have inadvertently received rubella vaccine after conception at the first and second trimester were prospectively followed during pregnancy by collecting data about the outcomes of their births. The data were compared with those of pregnant women (control group, n=54) who not received rubella vaccine and who delivered in the same immunisation program period.

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Results

There were no significant differences between the maternal and gestational ages of the pregnant women who received rubella vaccine (median age 30 years, gestational age 12 weeks) and those of the pregnant women who not received rubella vaccine (median age 31 years, gestational age 12 weeks), ($p>0.05$, $p>0.05$, respectively), Table 1. There was no significant difference in among the groups by regard to gravidity and parity ($p>0.05$, $p>0.05$, respectively). A total of 24 pregnant women who received rubella vaccine while pregnant were delivered durig the presented study. There was no significant difference in the mean of birth weight between two groups. Only two missed abortions was detected in pregnant women who received rubella vaccine while pregnant and one missed abortions in the control group during the immunisation program. None of the subjects gave birth to a baby with congenital rubella syndrome and no statistically significantly difference was found with regard to miscarriage rates between two groups ($p>0.05$). The mean Rubella IgG avidity test was found to be 94 indicating past infection or infection that occurred before several weeks. None of the fetus had been affected by reinfection with the rubella virus or none of the infants was born with congenital rubella syndrome.

Discussion

The advice to avoid pregnancy after rubella vaccination is based on a theoretical risk of problems rather than documented evidence of risk. As in the presented study, because a number of women have inadvertently received this vaccine while pregnant or soon before conception, the Centers for Disease Control and Prevention has collected data about the outcomes of their births. From 1971-1989, no evidence of CRS occurred in the 324 infants born to 321 women who received rubella vaccine while pregnant and continued pregnancy to term.[4] In a 10-year survey involving over 700 pregnant women who received rubella vaccine within 3 months before or after conception, (of whom 189 received the Wistar RA 27/3 strain) none of the newborns had abnormalities compatible with congenital rubella syndrome. Nonetheless women should be counseled to avoid becoming pregnant for 28 days after exposure to rubella-containing vaccines.[4-6] Researchers concluded that the rubella vaccination does not seem to be risky in early pregnancy, but Because a risk to the fetus from administration of these live virus vaccines cannot be excluded for theoretical reasons, women should be counseled to avoid becoming pregnant for 28 days after vaccination with measles or mumps vaccines or MMR or other rubella-containing vaccines.[5]

If the live attenuated vaccine is inadvertently given early in pregnancy, the risk to the fetus is very low and is not reason enough to terminate the pregnancy, says ACOG. According to the new opinion, rubella vaccination is believed to be safe for women who are breastfeeding.[7]

The IgG avidity test is indicated as an aid in the diagnosis of symptomatic primary infection and to make the differential serological diagnosis between asymptomatic primary infection and reinfection with the rubella virus, especially in pregnant women. At the onset of the immune response (acute phase), the IgG generated by the antigenic stimulus has low avidity (i.e. binds with less avidity to the antigen), but as time goes by in the convalescence, after the first two to four months of infection, avidity increases. The differential diagnosis between an asymptomatic primary rubella infection and re-infection is extremely important, yet difficult, because under both conditions antibody titres are increased and IgM may be present. The IgG level is important to indicate susceptibility to re-infection, common in women with levels below 10 IU/mL. Re-infections, for the most part asymptomatic, pose a low risk to the foetus, but they may develop with the presence of IgM, particularly in the re-infection of vaccinated women. Re-infection is suspected in a specific sample when the specific IgG is positive and the avidity of IgG is high, accompanied or not by IgM. So, avidity of IgG may be useful to distinguish between the two conditions, being low in primary infection and high in re-infection. Rubella IgG avidity test results were eval-

Table 1: Characteristics of women who inadvertently received Rubella vaccine while pregnant

	Women with Rubella vaccination during pregnancy (n=57)			Women without Rubella vaccination during pregnancy (n=54)			p
Maternal age	30	±	4.8	31	±	5.4	>0.05
Gestational age (wk) at Rubella vaccination	12	±	4.4	12	±	4.4	>0.05
Gravidity	2	±	1.0	2	±	1.5	>0.05
Parity	1	±	0.9	1	±	1.3	>0.05
Gestational age (wk) at Delivery	36	±	3.1	37	±	3.1	>0.05
Birth weight	3030	±	312.8	2904	±	806.9	>0.05

uated as high avidity for over 60% avidity, intermediate avidity for those in between 40-60% (gray region), and low avidity for avidities lower than 40%. In the presented study except to cases, the avidity of IgG was found to be high suggesting past infection or infection that occurred before several weeks. It is difficult to identify patient with re-infections as they would be asymptomatic. However some may transmit infection to the unborn babies. Patients with re-infection will have Rubella IgG with high avidity and occasionally they have detectable Rubella IgM. The best way of diagnosing re-infection is achieved by isolating the virus from respiratory secretions or urine. However, reinfection by rubella during the first trimester of pregnancy is thought to pose minimal risks to the fetus. Cases of CRS arising from rubella reinfection have rarely been reported and termination of pregnancy is not recommended. Therefore, it is important to distinguish reinfection from primary infection by rubella during the first trimester of pregnancy. In the absence of reliable confirmatory tests, needless abortions may result.

In conclusion, although the rubella vaccination does not seem to be risky in early pregnancy, the pregnancy test should be taken to all women who wants to rubella vaccination or all women should be counseled to avoid becoming pregnant for 1 month after vaccination.

Gebelik Sırasında Rubella Aşılaması Trabzon Türkiye, 2009

AMAÇ: Türkiye Cumhuriyeti Sağlık Bakanlığı konjenital ve edinilmiş rubella infeksiyonunu elimine etmek amacıyla bir aşılama programı gerçekleştirmiştir. İmmünizasyon programı oldukça başarılı olmuştur. Bununla birlikte 57 bayan gebe olduğu halde aşılanmıştır. Bizim amacımız rubella aşısının fetüs üzerinde herhangi bir riskin oluşturup oluşturmadığını araştırmaktır.

GEREÇ VE YÖNTEM: Toplam 57 bayan birinci ve ikinci trimestrde gebe olduğunu bilimeden aşılanmış olup doğuma kadar takip edildiler. Elde edilen veriler aynı immünizayon döneminde doğum yapmış ve rubella aşılanması yapılmayan gedelerin verileriyle karşılaştırıldı (kontrol grubu, n=54).

BULGULAR: Rubella aşısı yapılmış gebeler (medyan yaş 30, gebelik yaşı 12 hafta) ile rubella aşısı yapılmayan gebelerin (medyan yaş 31, gebelik yaşı 12 hafta) anne ve gebelik yaşı açısından iki grup arasında belirgin bir fark yoktu (p>0,05, p>0,05, sırasıyla). Gravidite ve parite açısından da her iki grup arasında belirgin bir fark yoktu (p>0,05, p>0,05, sırasıyla). Geçirilmiş infeksiyonu veya birkaç hafta öncesinde infeksiyonun geçirildiğini gösteren ortalama Rubella IgG avidite testi 94 olarak saptandı. Fetüslerden hiçbiri rubella virüsü ile reinfeksiyon olarak etkilenmedi vekonjenital rubella infeksiyonu ile doğan hiçbir çocuk olmadı.

SONUÇ: Erken gebelik döneminde yapılan rubella aşılaması riskli görülmemesine rağmen, rubella aşısı yaptırmak isteyen tüm bayanlar gebelik yönünden dikkat edilmeli veya tüm bayanlar aşılama sonrası 1 ay gebe kalmaması konusunda uyarılmalıdır.

Anahtar Kelimeler: Rubella, Aşı, Gebelik

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