Varicella virus vaccine before pregnancy
Important breakthrough in protecting fetuses

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Abstract

Now that the new varicella virus vaccine is available, should I vaccinate all my female patients of reproductive age who do not remember having had chickenpox in childhood?

In North America, seven out of 10 women who do not remember having chickenpox in childhood actually had it and are immune. You should test their immunity and, if they are susceptible, vaccinate them. Ensure they are not pregnant at the time of vaccination because the vaccine’s safety has not been proven.

Résumé

Maintenant que le nouveau vaccin contre le virus de la varicelle est disponible, devrais-je faire vacciner toutes mes patientes en âge de procréation qui ne se souviennent pas avoir eu la varicelle durant leur enfance l’ont effectivement eue et sont par conséquent immunisées. Il vaut mieux faire passer une épreuve immunitaire et si elles sont susceptibles de contracter la maladie, on peut procéder à la vaccination. Il faut s’assurer qu’elles ne sont pas enceintes au moment de la vaccination, parce que l’innocuité du vaccin n’a pas encore été démontrée.

Exposure to varicella during the first 20 weeks of pregnancy can result in congenital varicella syndrome in an estimated 2% to 3% of fetuses. The syndrome is characterized by serious central nervous system, eye, and limb malformations. In the Western world, most women are immune to varicella; most had chickenpox during childhood even if they do not remember having it. A recent study by Motherisk showed that 70% of those with a “negative history” were in fact immune. Women of other origins have lower rates of immunity (eg, in the West Indies it is 50%).

Varicella, a live, attenuated varicella virus vaccine produced by Oka/Merck Frosst Canada, was licensed in March 1995 and became available 2 months later in many countries. Clinical studies of Varivax in children showed that immunized youngsters were either completely protected from chickenpox or developed milder clinical disease.

For adults, two injections 4 or 8 weeks apart gave 80% protection; only 20% reported breakthrough chickenpox following household exposure (expected rate is 87%). The 20% had mostly mild disease. Seroconversion, defined by the acquisition of any detectable varicella antibodies, was observed in 97% of children 4 to 6 weeks after vaccination. Studies currently suggest that immunity persists in more than 95% of people for 7 years. It appears that exposure to natural varicella boosts antibody levels.

Varivax Pregnancy Registry

In 1995, Merck Frosst Canada, in collaboration with the Centres for Disease Control, established a registry of exposures to Varivax during pregnancy in order to evaluate the risk-safety profile of this live vaccine when given inadvertently during pregnancy.

By 1999, 290 complete cases were recorded in the registry. Most of them, however, received the vaccine before pregnancy started. Also, only 78 of them (27%) were shown by serologic testing to be seronegative, indicating susceptibility to wild varicella virus. Six women (2%) tested seropositive but received the vaccine anyway. The immunologic status of the

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Motherisk questions are prepared by the Motherisk Team at the Hospital for Sick Children in Toronto. Dr Koren is the Director of the Motherisk Program.
remaining 206 women (71%) was unknown.

Because the main concern with the new vaccine is the possibility that it will cause fetal varicella syndrome, its safety should be evaluated among proven seronegative women. From this registry, however, only 10 women (16%) received the vaccine after becoming pregnant. This is too small a number of clearly seronegative pregnant women for calculating safety.

None of these 10 mothers gave birth to children with malformations consistent with fetal varicella syndrome. The rate of malformations in the registry is well within the expected rate (2.3% confidence interval 0.8 to 5.0).

Confusion between Varivax and varicella immune globulin

In 19 cases known to Merck Frosst, seronegative pregnant women exposed to chickenpox received Varivax vaccine in error instead of varicella immune globulin (VZIG), which has been shown to reduce risk of fetal and maternal infection.3 In addition to being a product that has not been proven safe for fetuses, Varivax cannot be expected to render immunity, whereas VZIG can. We should all be careful to use these products appropriately.

References