Tenofovir Gel Effective During Term Pregnancy

BY DOUG BRUNK

FROM THE ANNUAL MEETING OF THE INFECTIOUS DISEASES SOCIETY FOR OBSTETRICS AND GYNECOLOGY

SANTA FE, N.M. — A single application of tenofovir 1% vaginal gel in term pregnancy produces low serum levels consistent with those reported in nonpregnant women, results from a small single-center trial demonstrated.

The findings come just weeks after a study published online in the journal Science found that 1% tenofovir gel used before and after sexual intercourse reduced HIV in women by 39% and reduced the incidence of herpes simplex virus type 2 infections by 50% (Science 2010 July 20 [doi:10.1126/science.1193748]). "It does appear that tenofovir gel, once absorbed, does get to the fetal compartment, with very low overall cord blood levels—approximately 40-fold lower than you see after oral dosing—with a very similar cord:maternal blood ratio," Dr. Richard Beigi said at the meeting.

"In addition, it appears that single-dose tenofovir appears very safe in term pregnancy. These findings justify continued investigation of this product in pregnancy," he said.

In a phase I trial conducted by the Microbicide Trials Network, researchers evaluated 16 healthy pregnant women who were scheduled to undergo cesarean delivery at term gestation between August 2008 and January 2010.

The women received a single 4-g application of tenofovir 1% vaginal gel preoperatively.

"Oral tenofovir has a growing record of safety," he said. "It's a category B drug, with close to 1,000 exposures collected in the Antiretroviral Pregnancy Registry. So we felt very comfortable moving [the gel form of] this drug into pregnancy trials."

Dr. Beigi of the department of obstetrics, gynecology and reproductive sciences at the University of Pittsburgh and his associates collected maternal blood for serum drug concentrations at baseline and at 1, 2, 4, 6, 8, 12, and 24 hours. They also collected specimens of amniotic fluid, cord blood, placenta, and endometrium during surgery, and collected data on maternal and neonatal adverse events.

'Single-dose tenofovir appears very safe in term pregnancy. These findings justify continued investigation.'

DR. BEIGI

All 16 women had detectable levels in the serum after vaginal placement. The median maternal concentration of tenofovir was 4.3 ng/mL, "which is very low," Dr. Beigi said. "The median time to get that concentration was approximately 4 hours. To put this in perspective, when a mom takes a single oral dose of 600-mg tenofovir, their median concentration is 440 ng/mL. So we're looking at levels that are approximately 100-fold lower."

The median cord:maternal blood ratio was 0.53, which is approximately the same as with oral dosing of tenofovir. ■

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Major Finding: The median maternal serum concentration of 1% tenofovir vaginal gel was 4.3 ng/mL, which is about 100-times lower than a single 600-mg dose of oral tenofovir.

Data Source: A phase I trial of 16 healthy pregnant women who were scheduled to undergo cesarean delivery at term gestation and who received a single 4-g application of tenofovir 1% vaginal gel preoperatively.

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