Geller Score Gauges Maternal Care Quality

BY SUSAN BIRK

CHICAGO — A five-factor scoring system that identifies women who nearly die from obstetric morbidity could potentially offer a more meaningful way to measure maternal health care quality between institutions, according to Dr. Whitney You of Northwestern University's Feinberg School of Medicine in Chicago.

Obstetric mortality has lost most of its value as a measure of maternal health care quality because it is so rare now in the United States, Dr. You said at the annual research meeting of AcademyHealth.

As an objective measure of near-miss obstetric morbidity, the scoring system could hold potential as an outcome measure for hospital case review as well as a reproducible maternal health measure for epidemiologic research aimed at identifying trends and risk factors, she said.

"I'm hoping to use it to figure out who is at greatest risk … where the disparity lies and why," she said in an interview. Morbidity covers a range from mild fever to near death. "Where is that level where women are very ill, the next step before death?" she asked.

In their study, Dr. You and colleagues used ICD-9 codes to identify 815 women with a high potential for significant obstetric morbidity in a high-volume, urban, tertiary care center over a 2-year period (2001-2002). A maternal-fetal medicine specialist categorized cases according to clinical impression of degree of morbidity: no morbidity (23%), minor morbidity (52%), severe morbidity (19%), and near-miss morbidity (5%), Dr. You explained. The cases then were scored using the five-factor weighted scoring system, in which a score of 8 or more is considered a case of near-miss morbidity. (See table.)

Use of the five-factor scoring system revealed a near-miss obstetric morbidity rate of 4.2% (34 patients). The weighted scoring system showed a 63% sensitivity rate for near-miss morbidity, 99% specificity, positive predictive value of 71% and negative predictive value of 98%, according to results from a poster - Dr. You presented at a meeting.

The study is the second to validate the Geller scoring system, developed by Dr. Stacie E. Geller of the University of Illinois at Chicago. "Most of the work has been done with a population at UIC. We wanted to see what would happen with a different population," Dr. You said.

In Dr. Geller's original work, five clinical factors (organ system failure, ICU admission, transfusion of more than 3 units, extended intubation for more than 12 hours and surgical intervention) were grouped into several scoring system alternatives. A scoring system based on all five factors showed the highest specificity (93%), but even a four-factor system, which eliminated organ system failure, achieved a specificity of 78% (J. Clin. Epidemiol. 2004;57:716-20).

Additional studies can help determine whether other factors could be added to identify cases of near-miss morbidity missed in this investigation, Dr. You noted.

In this study, a single maternal-fetal medicine provider reviewed all the cases. Since then, an obstetric anesthesiologist and another experienced maternal-fetal medicine specialist have reviewed the cases as well. Dr. You and her associates plan to calculate sensitivity and specificity based on these additional reviews. "After we get that information, we can decide if it can be a good tool to use in other settings," she said.

Adapting the scoring system to other types of institutions presents a key challenge.

"We need to figure out how it works in a rural setting or community hospital," she said. These smaller facilities often refer severely ill patients to tertiary care institutions, "so they may never get a patient that needs multiple transfusions or intubation for an extended time. Our hope is to level the grading system, just because it's so hard to compare one hospital to another."

Dr. You conducted this study while she was a National Research Service Award postdoctoral fellow at the Institute for Healthcare Studies under an award from the Agency for Healthcare Research and Quality. ■

Five-Factor Weighted Scoring System

Clinical Factor	Value
Organ system failure (one or more organ systems)	5
ICU admission	4
Transfusion (more than 3 units)	3
Extended intubation (more than 12 hours)	2
Surgical intervention	1

Note: Values for factors that apply are summed; a score of 8 or more is considered a case of near-miss morbidity.
Source: Dr. You

DRUGS, PREGNANCY, AND LACTATION

Pandemic Influenza A(H1N1) Vaccines, Antivirals

BY CHRISTINA CHAMBERS, PH.D., M.P.H.

Since the advent of the pandemic influenza A(H1N1) virus, a case series reported to the Centers for Disease Control and Prevention strongly suggests that, as expected based on experience with seasonal influenza and with previous pandemics, pregnant women are at increased risk for complications resulting from infection with the pandemic H1N1 virus.

Pregnant women in any trimester, or women who may become pregnant in the influenza season, are considered a high-priority special population to receive the pandemic influenza A(H1N1) monovalent vaccine as soon as it becomes available in the fall of 2009 (MMWR 2009;58:1-8), according to the CDC's Advisory Committee on Immunization Practices (ACIP). In addition to the pandemic H1N1 vaccine, the recommendation continues that pregnant women in any trimester also receive the seasonal influenza vaccine. Both vaccines are required to provide comprehensive protection against influenza illness. To provide the earliest benefit, pregnant women are encouraged to get the seasonal flu vaccine immediately, and to obtain the H1N1 vaccine as soon as it becomes available.

However, as long as different anatomic sites are used to administer the vaccines, the ACIP indicates that inactivated pandemic H1N1 and seasonal vaccines can be given at the same time (MMWR 2009;58:1-8). Pregnant women who have had an influenzalike illness in the past year are still encouraged to receive both the seasonal and pandemic H1N1 vaccines. Pregnant women are not advised to use the nasal spray form of the seasonal or pandemic H1N1 vaccines (Flumist), as both forms of this vaccine contain live attenuated virus.

With respect to vaccine safety, there are no studies that indicate that seasonal influenza vaccine poses a risk to the developing fetus, regardless of trimester of administration. Clinical trials of the pandemic H1N1 vaccines in pregnant women are underway. It is expected that both thimerosal-containing (multidose vials) and thimerosal-free (single-dose syringe) pandemic H1N1 vaccine products will be available in the fall. There is no evidence that thimerosal poses a risk to the fetus. However, for those who wish to avoid exposure to this preservative, both the seasonal and pandemic H1N1 vaccines will be available in thimerosal-free formulations. According to current plans, only unadjuvanted forms of these vaccines will be distributed in the United States.

In addition to the recommendation that all pregnant women be vaccinated with both the pandemic H1N1 and the seasonal influenza vaccines, guidelines for approaching the special population of pregnant women in the event of influenza infection have been outlined by the CDC (www.cdc.gov/H1N1flu/pregnancy/antiviral_messages.htm). In brief, all pregnant women should be counseled about the early signs and symptoms of influenza infection and advised to immediately call for evaluation if clinical signs or symptoms develop.

Treatment should be initiated as early as possible because studies show that treatment initiated early (i.e., within 48 hours of illness onset) is more likely to provide benefit. Treatment should not wait for laboratory confirmation of influenza because laboratory testing can delay treatment and because a negative rapid test for influenza does not rule out influenza.

Oseltamivir is currently preferred over zanamivir for treatment of pregnant women with suspected or confirmed influenza because of its systemic absorption, and can be taken during any trimester of pregnancy. The duration of antiviral treatment is 5 days. Postexposure chemoprophylaxis with oseltamivir or zanamivir also can be considered in order to lower the risk of infection with influenza in pregnant women. Although there are limited human data on the safety of these medications during pregnancy or breastfeeding, the data that exist do not suggest a risk (J. Antimicrob. Chemother. 2005;55 (suppl. S1):i5-21; CMAJ 2009;181:55-8). In addition to use of antiviral medication, maternal fever associated with influenza infection should be treated with acetaminophen to avoid prolonged fetal exposure to high maternal body temperature which is associated with increased risks to the fetus (Am. J. Public Health 2009 June 18 [doi: 10.2105/AJPH.2008.152900]).Several methods of monitoring safety for pandemic H1N1 vaccine use in pregnancy and antivirals are underway or being initiated. Obstetricians are encouraged to report any adverse effects of vaccines or antiviral medications (including adverse pregnancy outcomes) to the Vaccine Adverse Event Reporting System (VAERS) or MedWatch programs through the Food and Drug Administration.

For updated information about pandemic H1N1 influenza and pregnancy, see the CDC Web site: www.cdc.gov/h1n1flu/pregnancy.

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