

# Oxytocin Change Cut Emergency Cesareans

BY BETSY BATES

CHICAGO — The modification of the oxytocin infusion protocol at a large university-affiliated community hospital nearly halved the number of emergency cesarean deliveries over a 3-year period, reported Dr. Gary Ventolini.

As oxytocin utilization declined from 93.3% to 78.9%, emergency cesarean deliveries decreased from 10.9% to 5.7%, Dr. Ventolini said at the annual meeting of the American College of Obstetricians and Gynecologists. Other birth outcomes improved as well at an 848-bed community hospital that serves as the primary teaching hospital of the Boonshoft School of Medicine at Wright State University in Dayton, Ohio.

These included significant declines in emergency vacuum and forceps deliveries and a sharp reduction in neonatal ICU team mobilization for signs of fetal distress ( $P = .0001$  in year 3 compared with year 1).

"More and more data are showing us that we are using too much oxytocin too often," Dr. Ventolini, professor and chair of obstetrics and gynecology at the university, said in an interview.

"Our pivotal change was to modify the oxytocin infusion from 2 by 2 units every 20 minutes to 1 by 1 unit every 30 minutes. And we see the results," he said.

Outcomes of 14,184 births from 2005, 2006, and 2007 were retrospectively analyzed to determine any impact of the change in an oxytocin protocol implemented in 2005. Patient characteristics were similar in all 3 calendar years.

The most profound changes were in emergency deliveries, including cesarean deliveries, vacuum deliveries (which dropped from 9.1% to 8.5%), and forceps deliveries (which fell from 4% to 2.3%).

The overall cesarean section rate remained unchanged, as did the rates of cord prolapse, preeclampsia, and abruption.

Dr. Ventolini cited a recent article in the American Journal of Obstetrics and Gynecology that suggests guidelines for oxytocin use, including avoidance of dose increases at intervals shorter than 30 minutes in most situations (*Am. J. Obstet. Gynecol.* 2009;200:35.e1-e6).

Dr. Ventolini and his associates reported no financial conflicts of interest relevant to the study. ■

# Anesthesia Type in C-Sections: Preterm Outcomes Unaffected

BY HEIDI SPLETE

WASHINGTON — No significant differences in neonatal outcomes were found among premature infants of women who had spinal anesthesia versus general anesthesia for cesarean delivery, based on the results of a study of 78 deliveries.

Most data on anesthesia and elective C-sections come from studies of term infants, said Dr. Robin Russell and colleagues at the John Radcliffe Hospital in Oxford, England. Data from one recent review of premature infants suggested that neonatal mortality risk was greater with spinal anesthesia than with general anesthesia, the researchers noted.

In this study, Dr. Russell and associates reviewed information from 78 women who were delivered at less than 33 weeks' gestation at a single hospital (69 singleton and 9 twin deliveries); the average age of the women was 31 years. The results were presented in a poster at the annual meeting of the Society for Obstetric Anesthesia and Perinatology.

Spinal anesthesia (SA) was used in 58 cases, general anesthesia (GA) in 18 cases, and an epidural in 2 cases. The researchers compared the outcomes for the SA and GA cases based

on Apgar scores and umbilical blood gas levels.

Overall, Apgar scores were not significantly different between the spinal and general anesthesia groups. The median 1-minute Apgar score was 8 in the SA group (range, 2-10) and 7 in the GA group (range, 3-9), and the median 5-minute Apgar scores were 8 in the SA group and 9 in the GA group.

Measures of umbilical venous gases were available for 49 SA deliveries and 15 GA deliveries, and measures of umbilical arterial gases were available for 51 SA deliveries and 13 GA deliveries. Based on these measures, there were no significant differences between the groups.

In addition, the birth weights were similar between the two groups, and no significant differences were observed in the health of the infants at 28 days or 3 months of age.

The results contrast with findings from previous research, but the study was limited by its small size and retrospective design, the researchers said. "Further work is needed to determine the optimal mode of anesthesia for cesarean section in premature infants," they wrote. The investigators reported that they had no financial conflicts to disclose. ■

## DRUGS, PREGNANCY, AND LACTATION

### H1N1 Virus Infection

Novel H1N1 flu virus can cause acute respiratory illness with rapidly progressive severe pneumonia. Since April 15, 2009, when the Centers for Disease Control and Prevention confirmed by laboratory testing the first case of 2009-H1N1 flu in the United States, the infection has spread to all 50 states, the District of Columbia, and Puerto Rico. Although the overall influenza activity is decreasing in this country, outbreaks of the infection continue to occur, in some cases with intense activity ([www.cdc.gov/H1N1FLU](http://www.cdc.gov/H1N1FLU)).

Several important factors remain uncertain, such as how many infected people will develop severe morbidity, how many will die, and how the new virus will affect the United States during the fall/winter flu season. It is also unclear how the virus will affect most pregnancies, although pregnancy is thought to be a risk factor for worsening complications of H1N1 infection.

Seasonal flu is known to increase the chance of a pregnant woman getting sick or having serious problems, including preterm labor and severe pneumonia. The big question is, will H1N1 cause the same problems?

The CDC has published information on three recent cases of H1N1 virus infection in pregnancy (*MMWR* 2009;58:497-500).

The first case involved a 33-year-old, relatively healthy woman at 35 weeks' gestation who had a history of psoriasis and mild asthma. She presented at her obstetrician's office with a 1-day history of myalgias, dry cough, and low-grade fever. She had not recently traveled to Mexico. A rapid influenza diagnostic test in the physician's office was positive. About 4 days later, she developed worsening shortness of breath, fever, and productive cough.

An emergency cesarean section was performed to deliver a female infant with Apgar scores of 4 and 6 at 1 and 5 minutes. Currently, the infant is healthy. Two days after birth, the mother developed acute respiratory distress syndrome and 1 week later was started on oseltamivir (Tamiflu). The woman died about a week later. Testing by the CDC of a nasopharyngeal specimen was positive for H1N1 virus.

The second case involved a previously healthy 35-year-old woman at 32 weeks' gestation. She had been in Mexico for 3 days preceding her presentation with a 1-day history of shortness of breath, fever, cough, diarrhea, headache, myalgias, sore throat, and respiratory chest pain. Rapid influenza diagnostic testing was negative. Several members of her family in Mexico and the United States had recently been ill with influenzalike illness.

The following day, she was seen in her obstetrician's office and a nasopharyngeal swab sample was collected and sent

for virus testing. She was treated with antibiotics, antiemetics, acetaminophen, and inhaled corticosteroid. The patient recovered fully and her pregnancy was proceeding normally. Testing of the sample by the CDC confirmed infection with H1N1 virus.

The third case was a 29-year-old woman at 23 weeks' gestation who had a history of asthma but was not taking asthma medications. She presented with her 7-year-old son at a family practice clinic. Both had a 1-day history of cough, sore throat, chills, fever, and weakness. The mother had not traveled to Mexico, but a 10-year-old son had similar symptoms in

the previous week. Rapid influenza diagnostic testing of the mother was positive and was later confirmed to be H1N1 virus. The mother and her son were prescribed oseltamivir.

The mother's symptoms are resolving without complications (no information was provided about the son), and her pregnancy was proceeding normally. The clinic physician who evaluated the mother also was pregnant (13 weeks' gestation). She began oseltamivir and has remained asymptomatic.

The antiviral treatment of choice for H1N1 virus infection is oral oseltamivir or oral inhaled zanamivir (Relenza). Treatment should be started within 2 days of the onset of symptoms, but can be started after 48 hours for very sick or pregnant patients, and continued for 5 days. For prophylaxis, treatment should be continued for 10 days. These antivirals have no published information in human pregnancy. Both probably cross the placenta, but based on animal data and experience with most other antiviral agents, appear to be low risk. Moreover, the maternal benefit far outweighs any risk to the embryo or fetus.

Both agents are excreted into milk but probably present no risk to a nursing infant. In fact, the CDC Web site recommends that mothers with H1N1 virus infection continue to breastfeed because of the advantages of breast milk for the infant's immature immune system. The CDC Web site has an informational page on what pregnant women should know about H1N1 virus ([www.cdc.gov/h1n1flu/guidance/pregnant.htm](http://www.cdc.gov/h1n1flu/guidance/pregnant.htm)). You may want to print the answers to common questions and provide them to patients as a handout.

MR. BRIGGS is a pharmacist clinical specialist, Women's Pavilion, Miller Children's Hospital, Long Beach, Calif.; a clinical professor of pharmacy, University of California, San Francisco; and an adjunct professor of pharmacy, University of Southern California, Los Angeles. He is also a fellow of the American College of Clinical Pharmacy and coauthor of "Drugs in Pregnancy and Lactation."



BY GERALD G. BRIGGS, B.PHARM., FCCP