St.Petersburg Times ONLINE TAMPA BAY

Nurse error spotlights drug's danger

A pregnant woman died of a magnesium sulfate overdose at South Florida Baptist, despite the drug's well-known hazards.

By LISA GREENE, Times Staff Writer
Published June 15, 2006

TAMPA - One person's error killed Elisha Crews Bryant, hospital officials said last week: a miscalculation by a nurse that overdosed the pregnant 18-year-old with a drug meant to slow her labor.

But the drug that killed Bryant, magnesium sulfate, is a known hazard. At least 52 overdoses have occurred in recent years, including seven cases in which the patient died or remains in a persistent vegetative state, according to a widely cited nursing journal article.

Because of the risk, a national watchdog group and academic journals say hospitals should take extra precautions in administering the drug. Such precautions are meant to ensure that even if a nurse makes such an error, the patient won't be hurt.

It is unclear what procedures were used at South Florida Baptist Hospital in Plant City, where Bryant died. Hospital officials say they can't talk about specifics because they fear a lawsuit is likely.

The Institute for Safe Medication Practices in Pennsylvania sent a newsletter last fall to all the nation's hospitals detailing the dangers of magnesium sulfate.

Too much of the drug causes muscle weakness, leading to breathing failure. It also can cause low blood pressure and cardiac arrest.

Bryant's death shows why extra safeguards with the drug are so important, institute officials say.

"It's a reminder that the most careful, vigilant, knowledgeable practitioner can make errors," nurse Judy Smetzer, vice president of the institute, said of Bryant's death.

A South Florida Baptist spokeswoman repeated Wednesday what officials said last week: Bryant's death May 26 was the result of a single tragic mistake by an experienced nurse.

Bryant, 18, was seven months pregnant when she went to the hospital with preterm labor pains. A nurse gave her too much magnesium sulfate, which slows contractions.

As her breathing began to fail, hospital staffers gave her an antidote. They delivered her baby boy by caesarean section, but were unable to save her.

"We know that it was the human error," said Lisa Patterson, spokeswoman for the hospital, which is part of BayCare Health System. "It was the calculation mistake. The nurse made the calculation mistake."

But to patient safety experts, Bryant's death spotlights a core philosophy: Hospitals should be aware of potential errors and have multiple checks and balances, so that one person's math error can't kill.

"We know errors will occur because there are humans in the system," said pharmacist Frank Federico, a director at the Institute for Healthcare Improvement, a leading patient safety group. "We should be designing systems ... so we can identify them before they reach the patient."

For example, surgeons are expected to "sign their site" - to write on the patient's skin where they plan to operate, so they don't cut the wrong limb or organ.

In using magnesium sulfate, the extra precautions call for safety checks at each step of the process, from double-checking the dose and labeling IV tubes to monitoring the patient closely afterward.

Tampa General Hospital uses a "smart pump" that warns if too much magnesium sulfate is dispensed. Bayfront Medical Center requires two nurses to check the drug and label the IV tubes.

Patient safety is a top priority at South Florida Baptist, Patterson said, and BayCare hospitals "comply with quality assurance." BayCare staffers have copies of the safe medication group's magnesium sulfate warning, she said.

But because of a lawsuit expected by Bryant's family, hospital officials say they can't discuss details.

"We all are aware of the risks with magnesium sulfate and are very careful when administering it," Patterson said. "We believe this was just a very terrible, isolated incident."

Bryant died because she got too much of the drug too fast. But hospital officials, who still are investigating the incident, won't say what miscalculation the nurse made. She might have given too much of the drug to start with, or incorrectly programmed the pump that controls the IV solution.

Some factors raise questions about hospital procedures. Bryant's lawyer has said she was given a 40-gram solution, while the safety group recommends a 20-gram solution.

Hospital officials said that since the incident, they have increased supervision for the drug. The institute says the drug should be independently double-checked before being given.

Magnesium sulfate is one of several drugs commonly used to slow preterm labor contractions. All the drugs have only limited impact, and many have potentially life-threatening side effects, says the American College of Obstetricians and Gynecologists. As a result, the group says there's no clear choice of which drug to use.

The dangers of magnesium sulfate led the Institute for Safe Medication Practices to classify it as one of 25 "high-alert" medicines. Others include chemotherapy drugs, insulin and warfarin, a blood thinner.

That's why safeguards are needed, Federico said. It's unclear what happened in Bryant's case, Federico said, but such incidents are more than one person's failure.

"What we understand more often is where people like this nurse (make a mistake), they're not supported appropriately, they don't have the right systems in place," he said. "There are very few individuals who are to blame."

The nurse is on administrative leave, but hospital officials have said she has an excellent record and is likely to return to work.

Meanwhile, Bryant's son, Levi, remained hospitalized Wednesday, said family spokesman Bill Frederick. Her husband, Preston, is focusing on how to care for Levi and the couple's 2-year-old daughter, Tailor.

"It was such a tremendous blow to everyone, and so shocking," Frederick said. "But they have this responsibility to see it through for the baby."