Induction Ups Risk of Amniotic Fluid Embolism

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Contributing Writer

Medical induction of labor appears to double the risk of amniotic fluid embolism, reported Dr. Michael S. Kramer of Montreal Children's Hospital and his associates.

Findings from their retrospective cohort study of approximately 3 million hospital births throughout Canada between 1991 and 2002 "support the long-standing, but heretofore unsubstantiated, suspicion that labour induction increases the risk of this rare but serious maternal complication.

"Although the small absolute risk of amniotic fluid embolism is unlikely to affect the decision to induce labour in the presence of compelling clinical indications, women and physicians should be aware of this risk if the decision is elective," the researchers said in the Oct. 21 issue of the Lancet.

"We should emphasise that the absolute risk increase of amniotic fluid embolism for women undergoing medical induction of labour is very small: 4 or 5 total cases and 1 or 2 fatal cases per 100,000 women induced.

"However, with 4 million births per year and induction rates approaching 20% in the [United States], this practice could be causing amniotic fluid embolism in 30-40 women per year in the [United States] alone (including 10-15 deaths)," Dr. Kramer and his associates added (Lancet 2006;368:1444-8).

Despite being rare, amniotic fluid embolism is one of the leading causes of maternal mortality in developed countries, ahead of postpartum hemorrhage and other pulmonary embolisms. The cause of this catastrophic complication is not well understood. "It is thought to arise from a simultaneous tear in the fetal membranes and uterine vessels, through which amniotic fluid can pass into the uterine venous circulation and hence to the maternal pulmonary arterial circulation," the researchers said.

Strong uterine contractions are believed to raise the risk of amniotic fluid embolism, and induction and augmentation of labor have been proposed as possible contributing factors.

In their epidemiologic study of the association between drug-induced labor and amniotic fluid embolism, there were 180 cases of this condition, including 24 fatal cases, yielding a total rate of 6/100,000 singleton deliveries and a fatal rate of 0.8/100,000 singleton deliveries.

The rate was almost twice as high in women who had undergone medical induction of labor as in those who had not. This association remained robust after the data were adjusted to account for many other potential risk factors, such as maternal age, presentation, delivery method, previous cesarean delivery, pregnancy complications, and labor complications.

This finding "should be a cause for concern in view of the increasing tendency for clinicians to induce labour, and especially for routine induction at term or after term," the investigators said.

They also found that multiple pregnancy, older maternal age, cesarean delivery, forceps- or vacuum-assisted delivery, eclampsia, polyhydramnios, placenta previa, placental abruption, cervical laceration, uterine rupture, and fetal distress all raised the risk of amniotic fluid embolism, though not to the degree that drug-induced labor did. Many of these risk factors could be directly related to "the presumed causal roles of strong uterine contractions, excess amniotic fluid, and disruption of the uterine vasculature," the researchers noted.

Moreover, the link between amniotic embolism on the one hand and cesarean or instrumental vaginal delivery on the other "might simply reflect the difficult labours that led to these procedures, rather than true effects of the procedures themselves."

In particular, "the very strong association with caesarean delivery could also indicate reverse causality (i.e., the caesarean could have been a consequence of the signs and symptoms of amniotic fluid embolism," Dr. Kramer and his associates pointed out.

The rates of total and fatal amniotic fluid embolism did not increase over time in this study, even though the rate of medically induced labor did increase. This probably reflects the rarity of the disorder, or it could be because of the concomitant decrease in other risk factors, such as forceps delivery, they added. ■

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