Is the incidence of amniotic fluid embolism rising?

FAST TRACK

Three risk factors—induction of labor, cesarean delivery, and multiple pregnancy—are associated with amniotic fluid embolism

NO In this population-based cohort study and nested case-control analysis, Knight and coworkers used data from the UK Obstetric Surveillance System to estimate the incidence of amniotic fluid embolism (AFE), finding 2 cases for every 100,000 deliveries (95% confidence interval [CI], 1.5–2.5). This rate is lower than the incidence documented in retrospective reviews of population-based hospital discharge records in the United States—a rate of 7.7 cases for every 100,000 deliveries (95% CI, 6.7–8.7).[1]

Knight and colleagues also found the following risk factors to be associated with AFE:

- induction of labor (adjusted odds ratio [OR], 3.86; 95% CI, 2.04–7.31)
- multiple pregnancy (adjusted OR, 10.9; 95% CI, 2.81–42.7)
- cesarean delivery (postnatal AFE) (adjusted OR, 8.84; 95% CI, 3.7–21.1).

In addition, an increased risk of AFE was observed in older, ethnic-minority women (adjusted OR, 9.85; 95% CI, 3.57–27.2).

Knight M, Tuffnell D, Brocklehurst P, et al. Incidence and risk factors for amniotic-fluid embolism. Obstet Gynecol. 2010;115(5):910–917.

EXPERT COMMENTARY

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From February 2005 to February 2009, Knight and associates identified a total of 60 cases of AFE in the UK Obstetric Surveillance System. Their analysis of these cases, along with the cases of 1,227 women in the control group, is a valuable contribution to our understanding of AFE—an entity that few obstetricians will have the occasion to manage in their professional careers. One of the strengths of the study is the use of a comprehensive database, which made it possible to exclude 26 additional cases originally diagnosed as AFE but determined to be another entity. Scrutiny of these cases suggests that AFE may be over-reported.

Although the findings of this study are interesting—particularly the association between AFE and induction of labor, twin gestation, cesarean delivery, and the combination of older age and ethnic-minority status—they must be interpreted with caution. The study was an elegant mathematical exercise, but I

WHAT THIS EVIDENCE MEANS FOR PRACTICE

Recognition of amniotic fluid embolism (AFE) is exceedingly rare. In general, unless maternal hemorrhage is the presenting feature (without coagulopathy or cardiorespiratory compromise), suspect AFE when the mother experiences acute collapse along with one of the following features:

- acute fetal compromise
- cardiac arrest or arrhythmia
- coagulopathy
- hypotension
- hemorrhage
- premonitory symptoms (e.g., agitation)
- seizure.

When AFE is suspected, prompt intervention and initiation of supportive care are essential.

Although there are some risk factors for AFE, most cases of this phenomenon will remain sporadic and unpredictable.

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would hesitate to join the authors in sounding too many alarms. For example, without a biological explanation, I would be reluctant to tell clinicians to look for any increased risk of AFE among ethnic minorities.

I would be just as hesitant to "warn" obstetricians about induction of labor. If the risk of AFE attributable to induction is 35%, as the authors maintain, the elimination of induction altogether would only lower the rate of AFE from 2 cases to 1.3 cases for every 100,000 deliveries. Moreover, some of the variables that contribute to the need for induction could also contribute to an increased risk of AFE.

Postpartum cases that occur after cesarean delivery could actually be air embolism misclassified as AFE, especially if the uterus was exteriorized for repair—a phenomenon that has been reported.[2]

Reference

1. Abenhaim HA, Azoulay L, Kramer MS, Leduc L. Incidence and risk factors of amniotic fluid emoblism: a population-based study on 3 million births in the United States. Am J Obstet Gynecol. 2008;199(1):49.e1–e8.
2. Younker D, Rodriguez V, Kavanagh J. Massive air embolism during cesarean section. Anesthesiology. 1986;65(1):77–79.

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