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Epidural Analgesia and Breast-feeding

ACCORDING to the American Academy of Pediatrics, breast-feeding is the optimal form of nutrition for infants and should be maintained for the first 6 months of life. In addition to food value, breast milk enhances general health, growth, and development while decreasing risk of many infectious diseases.[1] Unfortunately, only 36.2% of mothers in the United States breast-feed their infants for at least 6 months.* There are many barriers to breast-feeding success. The article in this issue of ANESTHESIOLOGY by Beilin *et al.*[2] examines the role of intrapartum fentanyl as an additional factor.

The role intrapartum medications play in preventing effective breast-feeding has been debated for many years. Numerous studies have been performed, but most have been prospective or retrospective observational studies. These studies were not sufficiently well controlled to yield reproducible results. None of the studies, until now, have randomly assigned patients to different doses of drug in a rigorous attempt to determine the impact of intrapartum drugs on breast-feeding, and from that point of view, Beilin *et al.* have made an important contribution. It is important to note that initiation of breast-feeding should be considered distinctly from duration, because the predictors of success are different.[3]

In the current study, Beilin *et al.*[2] randomly assigned multiparous patients who had previously been successful in breast-feeding an infant for at least 6 weeks into three groups. Patients were excluded if they did not intend to breast-feed, received intravenous opioids, or had a cesarean delivery. All patients received epidural analgesia for labor. Patients in group 1 (n = 60) received no epidural fentanyl, patients in group 2 (n = 59) received less than 150 μg epidural fentanyl, and patients in group 3 (n = 58) received more than 150 μg epidural fentanyl. The dosing was accomplished by adjusting the fentanyl content of the bolus doses and maintenance infusion. At 24 h, the mother and a lactation consultant did a global assessment of breast-feeding and filled out 9- and 12-item questionnaires, respectively, containing descriptors of breast-feeding problems at that time. Because the sample size was based on a pilot study that observed feeding difficulties early in labor, we must assume, because it was not stated explicitly, that the primary outcome of the study was breast-feeding difficulty at the time of initiation.

Using the tools described above, the authors found no difference between groups in the incidence of mild or moderate problems with breast-feeding ($P = 0.09$). None of the patients had severe problems. Of the 21 items assessed by the mother and lactation consultant, 1 was statistically different ($P = 0.04$) among the study groups. This was likely a chance association, considering the number of comparisons involved. The sample size was sufficiently large to rule out an important difference, defined by the authors as 30%, in the incidence of breast-feeding problems among the groups.

If the study ended here, the results would be good news to anesthesiologists who routinely use fentanyl as a component of epidural labor analgesia. However, in the second part of the study, 157 of the original 177 subjects were interviewed 6 weeks postpartum to determine whether they were still breast-feeding. The results of the study indicate that women were less likely to continue breast-feeding if they received more than 150 μg fentanyl in the epidural space during labor ($P = 0.002$). This observation requires careful analysis because, if taken at face value, it seems to indicate that fentanyl could in some way be responsible for early cessation of breast-feeding.

There are four important reasons why these results should be interpreted with caution. First, the breast-feeding status of approximately 11% of patients (20 of 177) is unknown. In many studies, a small number of dropouts is acceptable because it does not bias the conclusions. Further, there may be evidence from other sources that the subjects who responded are similar to those who did not. In this case, a dropout rate of 11% seems very high because the overall rate of breast-feeding failure was only 9% among responders. It is likely that those who did not answer their phone for the interview differed significantly from those who did answer. For example, one could postulate that those mothers that were unable to answer the phone were also too busy to breast-feed. If a high proportion of nonresponders were also non–breast-feeders, the statistics become much less impressive. Second, although the tools used to measure breast-feeding problems in the first 24 h have been tested and used for many years, the assessment at 6 weeks was not precise. Although Beilin *et al.*[2] state that the patients stopped breast-feeding because the infant was having problems, the specific problems

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* Breastfeeding: Data and Statistics: Breastfeeding Practices—Results from the 2003 National Immunization Survey. Available at: http://www.cdc.gov/breastfeeding/data/NIS_data/. Accessed September 8, 2005.

were not elucidated. It would have been useful to use an appropriate tool to determine what the exact barriers to breast-feeding were in order to ensure that outside influences were not responsible for the infant's trouble breast-feeding. Such problems as maternal anxiety or family responsibilities could manifest as feeding problems in the infant. Clearly, intrapartum medication would not be responsible for a failure to continue breast-feeding under these circumstances. Third, the groups may be unbalanced for several important demographics. For example, there are no data on such important demographics as the husband's (and extended family's) attitude toward prolonged breast-feeding and employment outside the home.[3] Unfortunately, one cannot assume that these important demographics are equally distributed when relatively small numbers of patients are involved. Finally, it is difficult to find an obvious physiologic or pharmacologic mechanism by which the fentanyl might influence the incidence of breast-feeding 6 weeks after delivery.

As Beilin *et al.*[2] note, the addition of fentanyl to epidural analgesia allows a reduction in the amount of local anesthetic leading to reduced motor block and may improve obstetric outcome and patient satisfaction. They found no significant effect on successful initiation of breast-feeding. This result would be expected in light of other findings that show that fentanyl, in approximately the same doses as given in this study, has no effect on neonatal Apgar scores, cord gases, neurobehavioral scores at 2 and 24 h, or respiratory function as measured by transcutaneous partial pressures of oxygen and carbon dioxide.[4] It is premature to conclude that fentanyl causes harm by reducing the duration of breast-feeding. Further studies are required. These studies must consider the psychosocial environment, work history, intentions of the mothers involved, and other important know influences. A validated tool is required to determine the cause of breast-feeding cessation.

In the meantime, we agree with the conclusions of Beilin *et al.*[2] We should continue to use medications that are known to be effective, are satisfactory to patients, and provide the best obstetric and neonatal outcome possible. Whether to target patients who received high doses of epidural fentanyl for additional breast-feeding help depends on whether one believes that fentanyl causes a problem. Perhaps all patients should have the appropriate access to the help they need to meet the health goals of having at least 50% of women continuing to breast-feed for 6 months by the year 2010.†

Stephen H. Halpern, M.D., M.Sc., F.R.C.P.C.,‡ Alexander Ioscovich, M.D.‡ ‡Department of Anesthesia, Sunnybrook and Women's College Health Sciences Centre, University of Toronto, Toronto, Ontario, Canada. stephen.halpern@sw.ca

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