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- A new crime punishable by Cesarean Section
Mode of delivery and perinatal results in breech presentation

Lynn Brown, MD,* Theodore Karrison, PhD,* and Luis A. Cibils, MD*
Chicago, Illinois

OBJECTIVES: Our purpose was to evaluate the outcome of deliveries with fetuses in breech presentation at labor and to compare the results by route of delivery. Specially reviewed were fetuses weighing ≥1500 gm.

STUDY DESIGN: An observational study of consecutive cases of all singleton pregnancies and twin pregnancies with the first fetus presenting in breech delivered at Chicago Lying-In Hospital from July 1980 to December 1987 was performed. Crude perinatal mortality and effect of mode of delivery (cesarean vs vaginal) by weight were compared after correction for nonpreventable causes. A further correction was made for fetuses weighing ≥1500 gm by excluding all cases of fetal distress from the cesarean section group. All clinically relevant factors were evaluated. Statistical methods included comparison of frequencies in the two groups by χ² and Fisher exact tests and comparison of means by two sample t-tests.

RESULTS: Of 21,380 deliveries, 843 (3.9%) presented by the breech. Forty-four percent were delivered vaginally; 8.4% were first twins. There were 51% preterm infants, and 24% had clinical distress. Crude perinatal mortality was 24%: 8% stillborns, 10% from prematurity, and 6% from other causes, including lethal congenital malformations. The corrected perinatal mortality was 15%. Vaginal deliveries had a higher 5-minute depression rate (32% vs 24%) and corrected perinatal mortality (23% vs 9.6%); however, fetal weights were significantly lower. There were no differences in outcomes for newborns weighing ≥1500 gm by route of delivery; all five neonatal deaths in this subgroup occurred among the abdominal deliveries.

CONCLUSIONS: The very poor perinatal outcomes in breeches are primarily related to factors other than breech presentation. Route of delivery for infants weighing ≥1500 gm does not influence neonatal outcome; thus cesarean section solely for breech presentation in this subgroup does not appear to be justified. (Am J Obstet Gynecol 1994;171:28-34.)
Moxibustion for Correction of Breech Presentation

A Randomized Controlled Trial

Francesco Cardini, MD; Huang Weixin, MD

Context.—Traditional Chinese medicine uses moxibustion (burning herbs to stimulate acupuncture points) of acupoint BL 67 (Zhiyin, located beside the outer corner of the fifth toenail), to promote version of fetuses in breech presentation. Its effect may be through increasing fetal activity. However, no randomized controlled trial has evaluated the efficacy of this therapy.

Objective.—To evaluate the efficacy and safety of moxibustion on acupoint BL 67 to increase fetal activity and correct breech presentation.

Design.—Randomized, controlled, open clinical trial.

Setting.—Outpatient departments of the Women’s Hospital of Jiangxi Province, Nanchang, and Jiujian Women’s and Children’s Hospital in the People’s Republic of China.

Patients.—Primigravidas in the 33rd week of gestation with normal pregnancy and an ultrasound diagnosis of breech presentation.

Interventions.—The 130 subjects randomized to the intervention group received stimulation of acupoint BL 67 by moxa (Japanese term for Artemisia vulgaris) rolls for 7 days, with treatment for an additional 7 days if the fetus persisted in the breech presentation. The 130 subjects randomized to the control group received routine care but no interventions for breech presentation. Subjects with persistent breech presentation after 2 weeks of treatment could undergo external cephalic version anytime between 35 weeks’ gestation and delivery.

Main Outcome Measures.—Fetal movements counted by the mother during 1 hour each day for 1 week; number of cephalic presentations during the 35th week and at delivery.

Results.—The intervention group experienced a mean of 48.45 fetal movements vs 35.35 in the control group ($P<.001$; 95% confidence interval [CI] for difference, 10.56-15.60). During the 35th week of gestation, 98 (75.4%) of 130 fetuses in the intervention group were cephalic vs 62 (47.7%) of 130 fetuses in the control group ($P<.001$; relative risk [RR], 1.58; 95% CI, 1.29-1.94). Despite the fact that 24 subjects in the control group and 1 subject in the intervention group underwent external cephalic version, 98 (75.4%) of the 130 fetuses in the intervention group were cephalic at birth vs 81 (62.3%) of the 130 fetuses in the control group ($P = .02$; RR, 1.21; 95% CI, 1.02-1.43).

Conclusion.—Among primigravidas with breech presentation during the 33rd week of gestation, moxibustion for 1 to 2 weeks increased fetal activity during the treatment period and cephalic presentation after the treatment period and at delivery.

JAMA. 1998;280:1580-1584
Fetal position during pregnancy

Michael John Hughey, M.D.
Chicago and Evanston, Illinois

In this study of a normal, undelivered population the incidence of each fetal position was reported. Fetal position at 20 weeks' gestation did not correlate with delivery position. Fetal position at 36 weeks was very predictive of fetal position at delivery. Malposition was not associated with premature delivery per se. (AM J OBSTET GYNECOL 1985;153:885-6)

Key words: Fetus, breech, malposition, ultrasound, prematurity

A previous study determined the frequency of fetal positions in an undelivered high-risk population. A review of a normal, unselected private population is presented to determine (1) normal distribution of antepartum fetal position, (2) the probability of fetal position predicting delivery position, and (3) any association between malposition and prematurity.

Methods

From October 1, 1978, through December 31, 1981, 11,599 patients were delivered at Evanston Hospital's tertiary-level perinatal center. Of these patients, received their care through the ProCare health maintenance organization (NorthCare Medical Group) were offered routine ultrasound scans at 20, 36 weeks. Other scans occurred whenever needed. Excluded were 67 twin pregnancies and 7 with inadequate data. At the incidence of cephalic, breech position was calculated. were scanned patients who No patients with transverse lie were included in the study.

Fig. 1. Position of singleton fetuses during pregnancy.
Percent of Fetuses

Five years to the term breech trial: The rise and fall of a randomized controlled trial

Marek Glezerman, MD

Department of Obstetrics and Gynecology, Wolfson Medical Center, The Helen Schneider Hospital for Women, Holon and Rabin Medical Center, Petah Tikva and Sackler Medical School, Tel Aviv University, Tel Aviv, Israel

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KEY WORDS
Term breech trial
Cesarean delivery
Vaginal delivery
Randomized controlled trial

Objective: On the basis of the end points of neonatal morbidity and death, the authors of the term breech trial concluded unequivocally that cesarean delivery was safer for breech babies.

Study design: Analysis of the original and new data gives rise to serious concerns as far as study design, methods, and conclusions are concerned. In a substantial number of cases, there was a lack of adherence to the inclusion criteria. There was a large interinstitutional variation of standard of care; inadequate methods of antepartum and intrapartum fetal assessment were used, and a large proportion of women were recruited during active labor. In many instances of planned vaginal delivery, there was no attendance of a clinician with adequate expertise.

Results: Most cases of neonatal death and morbidity in the term breech trial cannot be attributed to the mode of delivery. Moreover, analysis of outcome after 2 years has shown no difference between vaginal and abdominal deliveries of breech babies.

Conclusion: The original term breech trial recommendations should be withdrawn.

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The term breech trial (TBT) aimed to provide evidence-based evidence on the controversy as to the preferred mode of delivery of breech babies.1 The trial was performed in 25 centers in 26 countries and included 2183 women with term fetuses in the breech presentation who were assigned randomly for delivery by either planned cesarean delivery (PCS) or by planned vaginal delivery (PVD). Primary outcomes that were measured were maternal and neonatal death and morbidity. I am the chairman of some of the participating centers that contributed 27 patients to the study.

Almost immediately, the conclusions of the trial were accepted by the medical community. Rarely in medical history have the results of a single research project so profoundly and so ubiquitously changed medical practice as in the case of this publication (TBT). A recent survey, which was performed in >80 centers in 23 countries, concluded that 92.5% of the surveyed centers have completely abandoned planned vaginal breech delivery in favor of cesarean delivery.2

It was the aim of the present study to demonstrate that the TBT has been based on serious methodological and clinical flaws that do not permit the results to be generalized and that the conclusions of the TBT were prematurely adopted by the medical community.

Material and methods

The original TBT publication and the publication-specific website were assessed including an examination despite the fact that evidence is still lacking. The consequences of this situation are many superfluous cesarean deliveries with consequential morbidity to women and the vanishing of obstetric expertise with increased risks to those breech babies who must be delivered vaginally. The group who has designed, initiated and conducted the TBT is one of the most important research institutions in modern obstetrics and has contributed tremendously to current knowledge in our profession. They should now accept responsibility and withdraw the conclusion of their TBT.
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- A new crime punishable by Cesarean Section

- Malpresentation must be “Corrected”?
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- Bonus Video ....
- Right, Wrong, You-know-who’s Way
DRUGS, MYTHS AND BIRTHING
by Jay Hathaway, AAHCC

I have come to believe that a group of erroneous beliefs are popular today:

MYTH ONE: Childbirth pain is unbearable and pointless.
MYTH TWO: Childbirth drugs work. That is drugs can help make childbirth pain-free, or at least less painful.
MYTH THREE: Childbirth drugs are safe for the mother.
MYTH FOUR: Childbirth drugs are safe for the baby.
MYTH FIVE: Drugs are given when the mother needs them most.
MYTH SIX: Pain is better if delayed.
MYTH SEVEN: Childbirth drug administration is painless.
MYTH EIGHT: It hurt so bad, even with the drugs that I must warn everyone to insist on plenty of drugs. Just imagine how bad it would have been without the drugs!

MYTH ONE: Childbirth pain is unbearable and pointless.
Every female member of your family tree beginning with Adam and Eve, right down to your grandmother, or great grandmother had a Bradley birth. Natural childbirth was all there was... back then, and only in the last few generations was unnatural childbirth even a possibility. Drugs for delivery began in the 1840's. Cesarean sections is not an ancient operation. This major surgical operation has been done on living mothers for little more than a century. The majority of births today, worldwide, are natural, often due to lack of medical personnel or facilities, and many of the countries which lack our sophistication seem to produce bumper-crops of kids.

Birth is not without pain. Birth is never without risk, this may be even truer lately as the U.S. currently ranks 29th in worldwide infant mortality (Pediatrics, Jan. 2010).

Could it be possible that pain is not all bad? Could pain have any purpose? Why is it there? Pain can be minimized, rearranged, changed or postponed... but I doubt it is ever truly gone. The saddest thing about obstetrical anaesthesia may be... if it works, it robs the mother of feeling the birth.

Natural childbirth works! This may sound radical, but it is true. Not only does it work, but it has a purpose... perhaps it is better to do it right... in the first place.
THE HIDDEN RISKS OF EPIDURALS

A common intervention, epidurals are given to reduce pain during birth. But at what cost? A leading Australian physician discusses how this invasive procedure actually impedes labor—and harms both mother and baby.

BY SARAH J. BUCKLEY ILLUSTRATIONS BY BRIAN EVANS PHOTOS BY LESLEY MASON

The first recorded use of an epidural was in 1885, when New York neurologist J. Leonard Corning injected cocaine into the back of a patient suffering from "spinal weakness and seminal incontinence." More than a century later, epidurals have become the most popular method of analgesia, or pain relief, in US birth rooms. In 2002, almost two-thirds of laboring women, including 59 percent of women who had a vaginal birth, reported that they were administered an epidural. In Canada in 2001-2002, around half of women who birthed vaginally used an epidural, and in the UK in 2003-2004, 21 percent of women had an epidural before or during delivery. Epidurals involve the injection of a local anesthetic drug (derived from cocaine) into the epidural space—the space around (e.g.) the tough coverings (dura) that protect the spinal cord. A conventional epidural will numb or block both the sensory and motor nerves as they exit from the spinal cord, giving very effective pain relief for labor but making the recipient unable to move the lower part of her body.

In the last five to ten years, epidurals have been developed with lower concentrations of local anesthetic drugs, and with combinations of local anesthetics and opiate painkillers (drugs similar to morphine and meperidine) to reduce the motor block. They produce a so-called walking epidural. Spinal analgesia has also been increasingly used in labor to reduce the motor block. Spinals involve drugs injected right through the dura and into the spinal (intrathecal) space, and they produce only short-term analgesia. To prolong the pain-relieving effect for labor, epidurals are now being coadministered with spinals, as a combined spinal epidural (CSE).

**Conclusion**

Epidurals have possible benefits but also significant risks for the laboring mother and her baby. These risks are well documented in the medical literature but may not be disclosed to the laboring woman. Women who wish to avoid the use of epidurals are advised to choose caregivers and models of care that promote, support, and understand the principles and practice of natural and undisturbed birth.
FDA Issues Warning On Use of Anesthetic For Pregnant Women

By a Wall Street Journal Staff Reporter

WASHINGTON—The local anesthetic bupivacaine shouldn’t be administered at its highest concentration level during deliveries because it may cause a pregnant woman’s heart to stop, the Food and Drug Administration warned.

An FDA spokesman said that since 1972, 20 women given the drug at its highest dosage have suffered cardiac arrest and 16 have died. All but two of the cases have occurred since February 1981.

Anesthesiologists inject bupivacaine into the lower back area during an obstetrical procedure called an epidural. But because a pregnant woman’s veins can be enlarged, the drug sometimes inadvertently is injected into her veins, the FDA spokesman said. A heart stoppage then may occur.

“It’s thought it would be much safer to eliminate the higher dosage” of 0.75% because “a lower dosage can provide obstetrical pain relief,” he explained.

He said manufacturers of the anesthetic reported 12 of the cases. The rest were uncovered by a Stanford University researcher.

The maker of bupivacaine is Abbott.
After losing his wife, a Marine now cares for his disabled son

By Rosemarie Bernardo
rbernard@starbulletin.com


On Dec. 14, 2002, the couple awaited the birth of their first baby at Tripler Army Medical Center. The couple originally planned to have a natural childbirth, but after 46 hours of painful labor, Jennifer decided to have an epidural injection to lessen the pain.

Soon after she received a second epidural after the first one failed to take effect, Jennifer stopped breathing. Doctors administered an emergency Caesarian section.

Four months after their son was born initially lifeless, Jennifer, 20, died of pneumonia due to complications from the epidural that was injected in the wrong space of her spine, according to attorney William Copulos, who is representing the Adams family.

On Dec. 14, 2002, Copulos said, Jennifer was given a second epidural at 6:40 p.m. Three minutes later, she complained that she was not feeling well.

The certified registered nurse anesthetist told her to say the alphabet backward. When Jennifer reached a, she started to stutter. "She looked at me and said she was scared," Adams said.

A second later, Adams said, her eyes rolled toward the back of her head, and she fell sideways on the bed. Jennifer became stiff and her face turned blue, he noted. The monitors hooked up to her body "went really crazy," he said.

Jennifer stopped breathing, and her heart stopped for about six to eight minutes, Copulos said. Following the emergency Caesarian section, doctors resuscitated Jennifer and transferred her to the intensive care unit, according to the lawsuit.

Her son, Diego, was also revived by doctors after he was initially born lifeless.
A routine epidural turns deadly

Julie and Chris LeMoult were excited parents-to-be. Did a hospital infection turn the happiest day of their lives into a nightmare?

By Lea Thompson
Chief consumer correspondent
NBC News
Updated: 4:04 p.m. PT June 4, 2006

This report aired Dateline NBC Sunday, June 4, 7 p.m.

WASHINGTON, D.C. - It was sunlit, summer Saturday, a perfect day for a wedding—and Julie Ellis and Chris LeMoult are the picture perfect bride and groom.
Hospital mistake paralyzes new mom

THE ASSOCIATED PRESS

INDIANAPOLIS -- A hospital that gave lethal doses of a drug to three premature babies has made another medication mistake, giving a new mother a painkiller 10 times faster than intended and making her temporarily unable to walk.

Amber Baise, 18, of Indianapolis, who received the painkiller during childbirth, has regained some movement in her legs as she recovers from what Methodist Hospital on Friday called a doctor's mistake.

"We remain hopeful that she will receive a full recovery. That is our hope. That is our commitment," said Bill Stephan, a spokesman for Clarian Health Partners, which operates Methodist and Indiana University's hospitals.

Baise entered Methodist on Oct. 8 to give birth to her first child and a doctor started her on an epidural. An improperly programmed pump gave her 10 hours worth of painkiller in just one hour.

Baise delivered a healthy girl.
The effect of intrapartum epidural analgesia on nulliparous labor: A randomized, controlled, prospective trial

James A. Thorp, MD, a Daniel H. Hu, MD, a Rene M. Albin, MD, a Jay McNitt, MD, b Bruce A. Meyer, MD, a Gary R. Cohen, MD, a and John D. Yeast, MD a
Kansas City, Missouri

OBJECTIVE: The purpose was to determine the effect of epidural analgesia on nulliparous labor and delivery.

STUDY DESIGN: Normal term nulliparous women in early spontaneous labor were randomized to receive either narcotic or epidural analgesia.

RESULTS: When compared with the group receiving narcotic analgesia (n = 48), the group receiving epidural analgesia (n = 48) had a significant prolongation in the first and second stages of labor, an increased requirement for oxytocin augmentation, and a significant slowing in the rate of cervical dilatation. Epidural analgesia was associated with a significant increase in malposition (4.4% vs 18.8%, p < 0.05). Cesarean delivery occurred more frequently in the epidural group (2.2% vs 25%, p < 0.05), primarily related to an increase in cesarean section for dystocia (2.2% vs 16.7%, p < 0.05).

CONCLUSIONS: In a randomized, controlled, prospective trial epidural analgesia resulted in a significant prolongation in the first and second stages of labor and a significant increase in the frequency of cesarean delivery, primarily related to dystocia. (AM J OBSTET GYNECOL 1993;169:851-8.)
Epidural Analgesia and Uterine Function

EDWARD R. NEWTON, MD, BARBARA C. SCHROEDER, MD, KELLY G. KNAPE, MD, AND BARI L. BENNETT, MD

Objective: To determine whether continuous epidural analgesia with bupivacaine and fentanyl affects the rate of cervical dilation and myometrial contractility.

Methods: In a 5-week period, 62 consecutive women who received standardized epidural analgesia were matched with the next two groups of 124 consecutive women of the same parity who did not receive epidural analgesia. The outcome variables were uterine activity, rate of cervical dilation, oxytocin therapy, and operative deliveries.

Results: Continuous epidural analgesia with bupivacaine and fentanyl did not result in a change in myometrial contractility in the first hour after the initiation of analgesia. However, despite more oxytocin therapy, the rate of cervical dilation was significantly lower in the epidural group than in the nonepidural group (5.9 versus 5.6 cm/hour, P < .001). Operative deliveries were more common in patients with epidural analgesia than in those without it (12 of 62 versus two of 124, P < .001).

Conclusion: After epidural analgesia, myometrial contractility is maintained with oxytocin, but the ability of the uterus to dilate the cervix is reduced significantly. (Obstet Gynecol 1995;85:749–55)

Materials and Methods

The protocol was approved by the Institutional Subjects Review Board of the University of Texas.
Positional effects on maternal cardiac output during labor with epidural analgesia

Diana R. Danilenko-Dixon, MD, Loreen Tefft, MS, Robert A. Cohen, DO, Barbara Haydon, BSN, and Marshall W. Carpenter, MD

Providence, Rhode Island

OBJECTIVE: Our purpose was to test the hypothesis that the supine versus the lateral position is associated with a greater decrement in cardiac output after epidural analgesia in labor.

STUDY DESIGN: Twenty-one normal term subjects were randomized to the left lateral or supine position in early labor. Cardiac output measured by the acetylene rebreathing method, stroke volume, heart rate, mean arterial pressure, and systemic vascular resistance were obtained at 5-minute intervals, beginning before a 500 ml intravenous fluid bolus (baseline) and ending 45 minutes after epidural injection.

RESULTS: Mean baseline supine versus lateral group differences were significant for 21% lower cardiac output, 21% lower stroke volume, 19% higher mean arterial pressure, 5% higher systemic vascular resistance, and equivalent heart rate. In the supine group fluid bolus resulted in significantly increased cardiac output and stroke volume, decreased mean arterial pressure and systemic vascular resistance, and unchanged heart rate. In the supine group cardiac output and stroke volume decreased significantly after epidural injection. The lateral position group exhibited no hemodynamic alterations after fluid bolus or epidural.

CONCLUSIONS: In contrast to the lateral position, the supine position is associated with a significant postepidural decrement in cardiac output, not identified by a change in heart rate. This likely reflects an inability to maintain stable preload volume in the supine position. (Am J Obstet Gynecol 1996;175:867-72.)
RESEARCH REPORT

Socio-economic versus obstetric risk factors for drug addiction in offspring

KARIN NYBERG,1,2 PETER ALLEBECK,4 GUNNAR EKLUND3 & BERTIL JACOBSON2

1Department of Clinical Alcohol and Drug Research, Karolinska Institute, Stockholm,  
2Department of Medical Engineering, Novum, Huddinge University Hospital, Huddinge,  
3Department of Cancer Epidemiology, Karolinska Institute, Stockholm & 4Department of Community Medicine, Huddinge University Hospital, Huddinge, Sweden

Abstract

Two possible risk factors for drug addiction were weighed against each other: (1) perinatal factors associated with obstetric medication at time of birth; and (2) factors associated with familial socio-economic conditions at time of birth. The subjects comprised 200 amphetamine addicts and 200 opiate addicts born in Stockholm 1945-1966. In a matched case control study, addicts were compared to their siblings with regard to possible obstetric risk factors by means of conditional logistic regression controlling for socio-economic level and civil status. Administration of opiates, barbiturates and nitrous oxide to mothers during labour was associated with drug addiction in offspring, hence confirming results from earlier studies. In a cohort study the risk associated with birth at a given hospital and familial socio-economic level was analysed by means of loglinear analysis using 7100 controls from the general population. For amphetamine addicts, a low socio-economic level at time of birth might be of importance for the infant subsequently becoming an addict. This could not be demonstrated for the opiate addicts. An uneven distribution of births among the hospitals, most pronounced for the amphetamine addicts, is in agreement with the hypothesis that obstetric practices may be risk factors for adult drug addiction.
Maternal Medication During Labor May Affect Offspring's Drug Dependency

WESTPORT, CT (Reuters Health) Oct 20 - Women who wish to lower their offspring's risk of drug abuse may decide to forego some of their own drug use during labor and delivery, according to the results of a prospective study.

Dr. Karin Nyberg, of the University of Goteborg in Sweden, and associates evaluated data collected on children born between 1959 and 1966. Of the 693 subjects ages 18 to 27 years who were interviewed, 69 met DSM-III diagnostic criteria for drug abuse and/or dependence on cocaine, hallucinogens, narcotics or other drugs.

Thirty-three non-drug abusing siblings served as controls. The investigators report their findings in the November issue of *Epidemiology*.

Multiple doses of strong pain medication were used during labor preceding the birth of 23% of the drug abusers and 6% of the controls. The researchers estimated an unadjusted odds ratio of 4.7 for drug dependency in offspring whose mothers received at least three doses of opiates or barbiturates within 10 hours of birth.

The occurrence of meconium-stained amniotic fluid was also associated with an elevated risk of drug dependence, but this was confounded by prenatal drug exposure in 5 of 17 cases. Other potential factors — prolonged labor, asphyxia, birth order, and low birthweight — were similar among cases and controls.

Dr. Nyberg and her colleagues report that their results replicate previous findings in humans and animals regarding prenatal exposure to high doses of medications at birth and adult offspring's drug dependence.

*Epidemiology* 2000;11:715-716.
Perinatal Medication as a Potential Risk Factor for Adult Drug Abuse in a North American Cohort

Karin Nyberg,1 Stephen L. Buka,2 and Lewis P. Lipsitt3

The aim of this study was to explore perinatal exposures to medications as risk factors for adult drug abuse. We compared 69 drug abusing subjects and their 33 non-abusing siblings with regard to history of labor pain analgesia during birth and other obstetric variables. Three or more doses of opiates or barbiturates at birth yielded an OR of 4.7 (95% CI = 1.0–44.1) for becoming a drug abuser after multiple perinatal drug exposure. (Epidemiology 2000;11:715–719)

Keywords: drug abuse, newborn, perinatal exposures, obstetric analgesia, cohort study.

Previous studies in Sweden demonstrated an association between drugs administered to mothers during labor and later drug abuse in the offspring.1,2 In one case-control study, opiate abusers were compared with their siblings and found to have a 4.7 times greater relative risk of becoming an abuser if exposed to three or more drug doses at birth, as compared with no drug exposure.2 The perinatal medications examined were opiates, barbiturates, and/or nitrous oxide, administered to the mother within 10 hours before birth. This time period was chosen on theoretical grounds from kinetic studies on pethidine, suggesting that any drug effect was likely to occur close to birth.3 No notable difference was observed for larger intervals between administration and delivery.

An unresolved alternative explanation in these investigations was the possibility that infants extensively exposed to nitrous oxide without oxygen addition may suffer from undiagnosed asphyxia. Hence, perinatal asphyxia rather than medication exposure may explain the overrepresentation of later addictive behavior in subjects heavily exposed to birth medications. This hypothesis, however, was not supported in one of our previous studies, a 25-year prospective investigation of psychiatric and behavioral sequelae of obstetric complications.4 Assessed with standardized tests and interviews, these individuals showed no increased occurrence of drug abuse or dependence associated with early obstetrical complications, including neonatal asphyxia.

The current investigation sought to explore further the findings of the Swedish studies in a North American sample, and specifically, to examine the relation between short-term perinatal exposure to medications at birth and the occurrence of drug abuse among the offspring as adults. A particular feature of this study was the adoption of a sibling design, in which subjects abusing and/or dependent on drugs were compared with non-abusing siblings with regard to perinatal drug exposure, hypoxia, and other obstetric variables.

Subjects and Methods
At the Providence, Rhode Island, Center of the National Collaborative Perinatal Project (NCPP), 4,140 pregnancies were enrolled between 1959 and 1966. Extensive obstetric, neurologic, psychologic, and sociodemographic information from the prenatal period through age 7 years was collected prospectively.5 At the age of 18 to 27 years, subjects were located through a variety of sources and follow-up procedures described previously.6 A sample of 693 subjects were interviewed and lifetime psychiatric diagnoses were assessed through version III of the Diagnostic Interview Schedule (DIS); this is a structured interview
Study found having 'gone under' more than once by age 3 seemed to raise risk for problems.
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- Klaus and Kennell’s Paradigm Shift
MATERNAL ATTACHMENT

Importance of the First Post-Partum Days

MARSHALL H. KLAUS, M.D., RICHARD JERAULD, B.S., NANCY C. KREGER, B.S.,
WILLIE MCALPINE, B.S., MEREDITH STEFFA, B.S., AND JOHN H. KENNULL, M.D.

Abstract To determine whether present hospital practices may affect later maternal behavior, we placed 28 primiparous women in two study groups shortly after delivery of normal full-term infants. Fourteen mothers (control group) had the usual physical contact with their infants, and 14 mothers (extended contact) had 16 hours of additional contact. Mothers' backgrounds and infants' characteristics were similar in both groups. Maternal behavior was measured 28 to 32 days later during a standardized interview, an examination of the baby and a filming before feeding. Extended-contact mothers were more reluctant to leave their infants with someone else, usually stood and watched during the examination, showed greater soothing behavior, and engaged in significantly more eye-to-eye contact and fondling. These studies suggest that simple modification of care shortly after delivery may alter subsequent maternal behavior.

In certain animals such as the goat, cow, and sheep, separation of the mother and infant immediately after birth for a period as short as one to four hours often results in distinctly aberrant mothering behavior, such as failure of the mother to care for the young, putting her own offspring away and feeding her own and other infants indiscriminately. In contrast, if they are together for the first four days and are then separated on the fifth day for an equal period, the mother resumes the protective and mothering behavior characteristic for her species when the pair is reunited. Thus, there is a special period immediately after delivery in the adult animal. If the animal mother is separated from her young during this period, deviant behavior may result. An early short period of separation does not produce as severe a distortion of mothering behavior in all species.

In recent years several investigators have studied after the delivery? Early results from these studies suggest that the long period of physical separation common in most nurseries may adversely affect maternal performance of some women.

Studies of human mothers of premature infants necessarily differ in design from the classic studies of separation in the animal mother. The gestation of the mothers is severely shortened, the infant is small and appears fragile, the period of separation after birth is greatly extended, and it has not been possible to provide close physical contact immediately after birth similar to the natural human and animal situation.

In most nurseries in the United States, however, even full-term mothers are separated from their infants for a short, but possibly important time. Thus, it seemed essential to determine whether present hospital practices for the mother of a full-term infant influence later maternal behavior. This report
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