Research Summaries for Normal Birth

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ABSTRACT

In this column, the author presents summaries of four research studies that further support the benefits of normal birth. The topics of the studies address cord clamping of term infants, the association of multiple cesareans and placental abnormalities, induction of labor at 41 weeks, and the World Health Organization's recently released pediatric growth charts.

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RANDOMIZED CONTROLLED TRIAL SUPPORTS DELAYED CORD CLAMPING FOR TERM INFANTS

- Ceriani Cernadas, J. M., Carroli, G., Pellegrini, L., Otaño, L., Ferreira, M., Ricci, C., et al. (2006). The effect of timing of cord clamping on neonatal venous hematocrit values and clinical outcome at term: A randomized, controlled trial. *Pediatrics*, 117(4), e779–787.

Summary

In this prospective, multicenter trial supported by UNICEF, researchers sought to determine the effect of delayed cord clamping on iron-deficiency anemia and clinical outcomes in term newborns. Two hundred seventy-six healthy women with uncomplicated pregnancies were randomized to three groups: cord clamping immediately after birth, at 1 minute, and at 3 minutes. Venous hematocrit (to measure anemia) and bilirubin (to measure pathologic jaundice) were drawn at 6 hours and 24–48 hours after birth. Newborn physical exams were

performed by clinicians who did not know to which group the infant was assigned.

Anemia (defined as a venous hematocrit of <45%) at 6 hours of age was significantly more common in newborns who were randomized to the immediate cord-clamping group (8.9% of newborns vs. 1% with cord clamping at 1 minute and 0% with cord clamping at 3 minutes). There was also a significant difference at 24–48 hours of age (16.8% of newborns in the immediate clamping group vs. 2.2% at 1 minute and 3.3% at 3 minutes). Significantly more infants in the 3-minute group had elevated hematocrit levels (polycythemia) at 6 hours of age (14.4% vs. 5.5% at 1 minute and 4.4% when the cord was clamped immediately). However, none of the polycythemic babies exhibited symptoms or required treatment, and the difference did not persist to 24–48 hours of age. Across the three groups, there were no significant differences in bilirubin values, rates of neonatal adverse events, or the infants' weight gain and rate of exclusive breastfeeding in the first month of life. Also, no significant differences were found in maternal outcomes such as blood loss or maternal hematocrit.

Significance for Normal Birth

Immediate cord clamping is a practice that has been performed routinely for decades without evidence of benefit. Placental transfer of oxygenated blood, nutrients, and stem cells continues for several minutes after birth. Physiologic principles suggest that the optimal transition to life outside the womb depends on this transfer. The study authors note that higher newborn iron levels at birth correlate with less likelihood of childhood anemia, a condition with long-term neurologic consequences. Some pediatricians recommend iron supplementation for breastfed infants, but it may be that by providing the full complement of iron, delayed cord clamping is the only iron supplement healthy babies need. As an added bonus, delayed cord clamping keeps babies in their mother's arms, the ideal place to regulate their temperature and initiate bonding and breastfeeding. This may be an important first step in promoting nonseparation of mother and baby after birth.

RISK OF PLACENTAL ABNORMALITIES RISES WITH HISTORY OF MULTIPLE CESAREANS

- Getahun, D., Oyelese, Y., Salihu, H., & Ananth, C. V. (2006). Previous cesarean delivery and risks of placenta previa and placental abruption. *Obstetrics & Gynecology*, 107(4), 771–778.

Summary

This large retrospective cohort study examined the association between a history of one or more previous cesarean surgeries and the risk of placental abruption or placenta previa in a subsequent pregnancy. Data were obtained from a Missouri statewide dataset in which siblings were linked to one another and to their biological mothers. In previous literature, Missouri's vital statistics recording system has been described as a "gold standard" for its reliability and validity.

Over an 8-year period, the investigators analyzed linked data from women's first two consecutive singleton births ($n = 157,831$) and first three consecutive singleton births ($n = 31,699$) to determine whether a history of one or more cesarean surgeries was associated with an increased risk of placental abruption or placenta previa in subsequent births. Investigators also examined whether the length of time between pregnancies affected the risk. The statistical model controlled for the effects of potential confounding factors such as maternal age, race, and smoking status.

Risk for previa in the second birth was increased 50% among women with a previous cesarean surgery. Among women with two previous cesareans, there was a two-fold increase in the risk of previa in the third pregnancy. Risk for abruption in the subsequent pregnancy was increased 30% in both the second and third births when the prior birth was by cesarean. A pregnancy occurring within the first year after giving birth by cesarean was associated with further elevations of the risk for both previa and abruption.

Significance for Normal Birth

This study adds to the growing list of studies showing strong evidence of a dose-response relationship between cesarean surgeries and placental complications in subsequent pregnancies: the more cesareans, the more complications. The doubling of risk for placenta previa in women with two previous cesareans is particularly troubling, because previa in the presence of a cesarean scar is associated with placenta accreta, a complication that results in very high maternal morbidity and mortality. Researchers are only beginning to understand the long-term reproductive risks of cesarean surgery. As the evidence of harm accumulates, it becomes ever more clear that preventing unnecessary primary cesareans is a crucial measure for protecting the health of both mothers and babies.

POLICY OF INDUCTION OF LABOR AT 41 WEEKS ASSOCIATED WITH EXCESSIVE USE OF MEDICAL INTERVENTIONS

- Fok, W. Y., Chan, L. Y., Yuet Tsui, M. H., Leung, T. N., Lau, T. K., & Hung Chung, T. K. (2006). When to induce labor for post-term? A study of induction at 41 weeks versus 42 weeks. *European Journal of Obstetrics & Gynecology*, 125, 206–210.

Summary

This retrospective study compared outcomes of "postterm" pregnancies occurring when a hospital protocol required induction at 42 weeks with those occurring after the protocol was changed to require routine induction at 41 weeks. Prior to the protocol change, a routine cardiotocogram (nonstress test) was performed at 41 weeks and, if normal, induction was scheduled at 42 weeks. The hospital was a university-affiliated obstetric unit in Hong Kong performing over 5,000 births per year.

During the period when postterm induction occurred at 42 weeks, 28.6% of women who reached at least 41 weeks of labor underwent induction of labor. With a policy of labor induction for postterm at 41 weeks, the rate was 58%. Routine induction of labor at 41 weeks only reduced the mean gestational age at birth by 3 days. The average length of labor was significantly longer, and use of epidural analgesia was significantly more common in this group. There were no differences in maternal characteristics, mode of birth, or newborn outcomes across the two groups. Outcomes were unchanged when the researchers repeated their analyses, controlling for parity.

Significance for Normal Birth

Complex hormonal signals between baby and mother allow labor to begin on its own. Although this may happen for many women up to 2 weeks (or more) after the estimated due date, many care providers believe that routine induction at 41 weeks is associated with improved perinatal outcomes. This assertion is based on previous research that may be critically flawed.

This retrospective study is not big enough to detect differences in rare, adverse, maternal and infant outcomes, but it provides compelling data that suggest that inducing labor at 41 weeks is associated with high rates of obstetric interventions. Use of pharmacologic induction agents and epidural analgesia became much more common on this obstetric unit after the clinical protocol required induction of labor at 41 weeks. Labor was also considerably longer when induction was required at 41 weeks, compared with labors occurring at the same hospital prior to the protocol change. The trade-off of such excessive intervention was a mere 3-day difference in the average gestational age at birth. Women facing induction at 41 weeks need to know that waiting just a few more days will likely allow labor to start on its own and help avoid potentially harmful interventions.

NEW PEDIATRIC GROWTH CHARTS REFLECT BREASTFEEDING AS THE NORM

- World Health Organization [WHO] Multicentre Growth Reference Study Group. (2006). WHO child growth standards. *Acta Paediatrica*, Supplement 450.

Summary

The World Health Organization (WHO) recently released the first of a series of new pediatric growth

charts. The new growth standards were developed to replace existing pediatric growth charts based on growth patterns in predominantly formula-fed populations. Beginning almost a decade ago, the WHO undertook a detailed and elaborate statistical study, sampling thousands of infants from eight ethnically diverse, economically stable nations where at least 20% of women had access to breastfeeding support and followed WHO infant-feeding guidelines. The healthy, term infants who participated were followed by trained researchers biweekly for 2 months, monthly up to 12 months, and bi-monthly up to 24 months. An additional sample of children was followed up to 71 months. Breastfeeding support was provided as needed. Data were collected on infant-growth patterns and achievement of motor skills.

The resulting infant growth standards offer pediatric providers and parents the first evidence-based information on how children *should* grow under optimal conditions. The researchers found that there was very little ethnic variability in average growth or achievement of motor skills, suggesting that poverty and suboptimal nutrition are responsible for previously observed regional variability in infant growth.

Significance for Normal Birth

The WHO infant growth charts are an important step in positioning breastfeeding as the norm and reversing decades of erroneous advice to parents of breastfed infants who were told that their infants were failing to thrive because they gained weight more slowly than formula-fed infants. Now, more formula-fed babies will be seen to “fall off the curve” by gaining weight too rapidly, an important predictor of childhood obesity.

The results of the WHO Multicentre Growth Reference Study provide solid evidence that breastfeeding contributes to the optimal growth and motor development of infants. Interventions in normal birth, including cesarean surgery and unnecessary separation of mothers and babies, impede women’s ability to initiate successful breastfeeding with their newborn, thereby contributing to less than optimal infant growth and development.

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For a detailed critique of previous flawed research on postterm induction, visit the following link on the Web site of the Lamaze Institute for Normal Birth: <http://www.lamaze.org/institute/flawed/intro.asp>

For more information on “The WHO Child Growth Standards” log on to <http://www.who.int/childgrowth/en/>