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Literature Search Results

Search request date: 27\textsuperscript{th} December 2013
Search completion date: 31\textsuperscript{st} December 2013
Search completed by: Jan Badcock

Enquiry Details

When is hand expressing of breast milk recommended antenatally?
Such as Diabetic Mums, c-section, preterm baby.

If hand expression is recommended when should this be commenced?
Currently we understand the evidence is to not hand express before 37 weeks gestation.
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**Chapter 7 Neonatal care**

*Prevention and assessment of neonatal hypoglycaemia*

**Is systematic banking of colostrum antenatally of any benefit in pregnancies complicated by diabetes?**

**Why this is important**

Babies of women with diabetes are at increased risk of neonatal hypoglycaemia and may need frequent early feeding to establish and maintain normoglycaemia. Additionally, the opportunity for early skin-to-skin contact and initiation of breastfeeding is not always achieved in pregnancies complicated by diabetes because of the increased risk of neonatal complications requiring admission to intensive/special care. Antenatal expression and storage of colostrum may, therefore, be of benefit to babies of women with diabetes. There have been no clinical studies to evaluate the effectiveness of antenatal banking of colostrum in women with diabetes. Randomised controlled trials are needed to determine whether this practice is clinically and cost-effective. Encouraging women with diabetes to express and store colostrum before birth might be viewed as an additional barrier to breastfeeding in this group of women who already have lower breastfeeding rates than the general maternity population. There is also a putative risk of precipitating uterine contractions through antenatal expression of colostrum and an accompanying release of oxytocin. These factors should be explored in the randomised controlled trials.”

**“Research recommendations for prevention and assessment of neonatal hypoglycaemia**

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http://guidance.nice.org.uk/CG63/Guidance/pdf/English
How to... Teach a Mother the Technique of Hand Expressing
Midwives magazine: Issue 5 : 2011
Assisting a mother to hand express effectively can help her overcome many challenges that may occur during her breastfeeding experience, says Janet Beech, infant-feeding co-ordinator at Countess of Chester NHS Foundation Trust.
http://www.rcm.org.uk/EasySiteWeb/Gatewa...yleLink.aspx?alId=171071

Evidence

Cochrane Intervention Protocol
Antenatal Breast Milk Expression by Women with Diabetes for Improving Infant Outcomes
Christine E East, Willie J Dolan, Della A Forster
This is the intervention protocol for the Cochrane review and stated the evidence so far, the rationale and what the final report will entail.

OBJECTIVE: to critically review literature related to the practice of antenatal breast expression (ABE) and the reasons for this practice.
METHOD: a critical review of available literature was undertaken by accessing Internet and library resources. Articles were to be documented in English. No restrictions were placed on dates due to the important historical background of this topic. Keywords used to refine the search included antenatal breast expression, colostrum, antenatal breast-feeding education and midwives and International Board Certified Lactation Consultants (IBCLC).

FINDINGS: the literature search discovered ABE has been performed historically to prepare breasts for breast-feeding postnatally. It is presently being taught to store colostrum to prevent neonatal hypoglycaemia or hasten production of Lactogenesis 2. Studies relating to nipple stimulation were also critically appraised due to concerns of premature labour. CONCLUSIONS: the safety and efficacy of ABE has yet to be demonstrated. The three studies related to the benefits teaching of this skill were small in size with methodological flaws. Trials related to nipple stimulation were also found to have substantial limitations. The reasons for and physicality of performing ABE vs. nipple stimulation differed markedly. While recent teaching of ABE has been encouraged through available commentaries, case studies and policies (in view of the documented positive effects of early colostrum administration), the benefits of this practice are yet to be substantiated.
IMPLICATIONS FOR PRACTICE: large, credible RCTs are needed to confirm efficacy and safety of this technique. A survey exploring the prevalence of ABE practices is also indicated and to explore the information currently provided by midwives to women in their care.
Antenatal Breast Expression in Women with Diabetes: Outcomes from a Retrospective Cohort Study
Hora Soltani and Alexandra MS Scott

Women with diabetes are sometimes advised to express breast milk antenatally to prepare for breastfeeding and to store colostrum for infant feeding in preventing or treating hypoglycaemia after the birth. The acceptability, risks and benefits of this practice have not been evaluated. This was aimed to investigate the pattern of antenatal breast expression uptake and its relationship with birth outcomes in women with diabetes.

Methods: This was part of a two year retrospective cohort study of pregnant women with diabetes (type 1, 2 and gestational diabetes) who gave birth during 2001–2003 in Derby Hospitals NHS Foundation Trust (n = 94). The information on the practice of antenatal breastfeeding expression and birth outcomes was collected via self-administered questionnaires and by examining maternity records.

Results: Thirty-seven percent of women (35/94) recalled that they were advised to express antenatally and 17% did (16/94). The mean gestational age at birth for women who hand-expressed was lower than that for those who did not (mean difference (MD) (95% confidence intervals (CI)): -1.2 (-2.4 to 0.04), p = 0.06). A higher proportion of babies from the antenatal expression group were admitted to special care baby units (SCBU) (MD (95% CI): 21% (-3.9 to 46.3)).

Conclusions: Less than half the women who stated that they were advised to express, did so. There seems to be an indication that antenatal breast milk expression and lower gestational age at birth are associated. The trend of a higher rate of SCBU admission for babies from the breast milk expression group compared to those who did not express antenatally is of concern. An appropriately-powered randomised controlled trial is needed to determine the safety of this practice and its acceptability to women and health professionals before it can be recommended for implementation in practice.

UK Database of Uncertainties about Effects and Treatments (DUETS)
The UK Database of Uncertainties about the Effects of Treatments (UK DUETs) publishes treatment uncertainties from patients, carers, clinicians, and from research recommendations, covering a wide variety of health problems. This is their response to the uncertainty of antenatal breast expression.

Antenatal breast milk expression by women with diabetes for improving infant outcomes Record type

Uncertainties being addressed in ongoing research
Source
Cochrane Pregnancy and Childbirth Group

Why is there uncertainty?
No relevant systematic reviews identified

References to reliable up-to-date systematic reviews:
None identified

What is needed?
Systematic reviews

Systematic reviews that need updating or extending
None identified

Systematic Reviews in Preparation

Ongoing Controlled Trials
As this is a protocol for a Cochrane systematic review, no search has been made to identify any on-going trials
Diabetes and Antenatal Milk Expressing: A Pilot Project to Inform the Development of a Randomised Controlled Trial

Objective: infants of women with diabetes in pregnancy are at increased risk of hypoglycaemia. If the infant's blood glucose is low and the mother is unable to breastfeed/provide sufficient expressed breast milk, infants are often given formula. Some hospitals encourage women with diabetes to express breast milk before birth. However, there is limited evidence for this practice, including its impact on labour and birth, e.g. causing premature birth may be a concern. A pilot study was undertaken to establish the feasibility of conducting an adequately powered randomised controlled trial to evaluate this practice.

Design: consecutive eligible women with pre-existing or gestational diabetes (requiring insulin), planning to breast feed and attending the study hospital were offered participation.
Inclusion criteria: 34–36 weeks of gestation; singleton pregnancy; cephalic presentation; and able to speak, read and write in English. Exclusion criteria: history of spontaneous preterm birth, antepartum haemorrhage, placenta praevia and suspected fetal compromise. Women were encouraged to express colostrum twice a day from 36 weeks of gestation, and advised how to store the colostrum, which was frozen for their infant's use after birth. They were asked to keep a diary documenting their expressing. Data: demographic questionnaire, telephone interview at six and 12 weeks postpartum and medical record data.
Setting: a public, tertiary, women's hospital in Melbourne, Australia.
Participants: 43 women with diabetes in pregnancy (requiring insulin).
Findings: cardiotocographs were undertaken after the first expressing episode and none of the infants showed any sign of fetal compromise. Forty per cent of infants received formula in the 24 hours postpartum. The proportion of infants receiving any breast milk at six weeks was 90%, and this decreased to 75% at 12 weeks. No women showed evidence of hypoglycaemia post expressing. The intervention was positively received by most women; 95% said that they would express antenatally again if the practice proved to be beneficial.
The amount of colostrum varied according to the number of expressions, the length of time in the study and the time spent expressing, with a median of 14 days expressing and 39.6ml of colostrum obtained.
Key conclusions: the small number of women in this pilot was not an adequate number to examine safety or efficacy, but this study does provide evidence that it would be feasible and desirable to conduct a randomised controlled trial of antenatal milk expressing for women with diabetes requiring insulin in pregnancy.
Implications for practice: it is important that this widespread practice undergoes rigorous evaluation to assess both efficacy and safety. Until such evidence is available, the authors suggest that the routine encouragement of antenatal milk expressing in women with diabetes in pregnancy should cease.

Colostrum is universally acknowledged as the perfect first food for infants. Oxytocin is the hormone of both labour and lactation but the literature shows that it does not always induce labour. A review of the custom of expressing antenatally by all women is followed by the maternal and infant medical reasons for expressing and storing colostrum. A suggested regime for expressing and storage of colostrum during pregnancy is included with advice about skin-to-skin contact in the first twenty-four hours to maximise breastmilk output in the long term.
Colostrum Harvesting And Type 1 Diabetes
Tracey Clay
Journal of Diabetes Nursing Vol 9 No 3 2005

Introduction
This article is an example of a collaborative partnership approach between a multidisciplinary team in a joint antenatal diabetes clinic and a mother with type 1 diabetes. The whole team supported this woman from pre-conception, throughout her second pregnancy and postnatally to help her experience the harvesting of colostrum in the antenatal period and enable a positive breastfeeding outcome for her newborn daughter. This experience has harnessed the working practices of the specialist team, including the midwife, diabetes specialist nurse and breast-feeding coordinator, where the sharing of knowledge and practice has enabled appreciation of professional roles.

Evaluation of Two Methods Employed for Cervical Ripening.

The study evaluates breast stimulation and oxytocin infusion as methods for cervical ripening in patients where an obstetric indication for induction of labour exists. Forty patients with a Bishop score of 5 or 6 were randomly selected for either breast stimulation or oxytocin infusion. In a similar group of 20 cases, no method was employed. The Bishop score improved in 41.2% of cases where breast stimulation was used as compared to 75% where an oxytocin infusion was given. Three foetal deaths in the breast stimulation group brought the study to a stop after 17 cases. Cervical ripening with an oxytocin infusion drip appears to be a better method since infusion dosage can be precisely controlled making the technique more predictable and reliable. Though breast stimulation is effective in ripening the cervix, it may be used only in cases of intrauterine foetal death as it may otherwise adversely affect foetal outcome.

Changes in the Bishop Score Induced by Manual Nipple Stimulation. A Cross-Over Randomized Study.
Di Lieto A, Miranda L, Ardito P, Favale P, Albano G Bishop score changes, by a cross-over, randomized study, were evaluated in 60 primigravidas at term, not yet in labour, who performed nipple stimulation for 45 minutes three times a day for three days. Results showed that changes of Bishop score in the treated groups were statistically highly significant, in comparison to control groups. A greater frequency in the onset of labour was also remarked.
Research

Antenatal Breast Expression: Exploration and Extent of Teaching Practices amongst International Board Certified Lactation Consultant midwives across Australia. Women & Birth, 01 March 2013, vol./is. 26/1(41-48), 18715192
Chapman, Tegan; Pincombe, Jan; Harris, Mary; Fereday, Jennifer
Abstract: Background: Antenatal breast expression (ABE) has been taught in the past as breast preparation. Now some authorities are advising ABE and storage of colostrum for the feeding the newborn in the treatment and/or prevention of hypoglycaemia in the immediate postnatal period (thus avoiding the need for formula supplementation). The actual incidence of ABE teaching amongst International Board Certified Lactation Consultant (IBCLC) Midwives is unknown. Results of this study will provide valuable baseline data for future randomised controlled trials into this practice. Research question: What are the teaching practices surrounding ABE and the incidence of this type of teaching by IBCLC Midwives across Australia? Method: A descriptive cross-sectional Internet survey containing both quantitative and qualitative questions was sent to Australian IBCLC Midwives. Simple descriptive statistics was used to analyse quantitative data. Content analysis examined qualitative textual data of open-ended questions. Findings: Response rate was 27% (n =347/1269). 93% (n =322) of those responding to the survey had heard of ABE. 60% (n =134) actively teach the practice. Descriptive statistics and content analysis revealed marked differences in teaching practices amongst this specialised group of midwives. Conclusion: This study suggested a large proportion of lactation qualified midwife respondents were aware of ABE and some currently teach the skill. However, advice given to women during pregnancy varied substantially.
Source: CINAHL

Breastfeeding and Diabetes: Part 2.
Practising Midwife, 01 December 2012, vol./is. 15/11(33-35), 14613123 Finigan, Valerie
In 2007 the Confidential Enquiry into Maternal and Child Health (CEMACH) made clear recommendations about the care that mothers with diabetes and their infants should receive in line with UNICEF's (2009) evidence based standards and as a response to concerns about the care of the newborn baby (CEMACH 2007). The report demonstrated suboptimal management with regards to neonatal hypoglycaemia, early feeding, lower breastfeeding rates and a higher than expected number of admissions to neonatal units for infants of diabetic mothers. This second paper shares ideas of targeted interventions that support diabetic mothers to breastfeed.
Publication Type: journal article
Source: CINAHL

MIDIRS Midwifery Digest, 01 September 2012, vol./is. 22/3(376-377), 09615555
Soltani, Hora
Source: CINAHL
Diabetes and Antenatal Milk Expressing: A Pilot Project to Inform the Development of a Randomised Controlled Trial.
Midwifery, 01 April 2011, vol./is. 27/2(209-214), 02666138
Forster, Della A.; McEgan, Kerri; Ford, Rachael; Moorhead, Anita; Opie, Gillian; Walker, Susan; McNamara, Cath

Objective: infants of women with diabetes in pregnancy are at increased risk of hypoglycaemia. If the infant's blood glucose is low and the mother is unable to breast feed/provide sufficient expressed breast milk, infants are often given formula. Some hospitals encourage women with diabetes to express breast milk before birth. However, there is limited evidence for this practice, including its impact on labour and birth, e.g. causing premature birth may be a concern. A pilot study was undertaken to establish the feasibility of conducting an adequately powered randomised controlled trial to evaluate this practice. Design: consecutive eligible women with pre-existing or gestational diabetes (requiring insulin), planning to breast feed and attending the study hospital were offered participation. Inclusion criteria: 34–36 weeks of gestation; singleton pregnancy; cephalic presentation; and able to speak, read and write in English. Exclusion criteria: history of spontaneous preterm birth, antepartum haemorrhage, placenta praevia and suspected fetal compromise. Women were encouraged to express colostrum twice a day from 36 weeks of gestation, and advised how to store the colostrum, which was frozen for their infant's use after birth. They were asked to keep a diary documenting their expressing. Data: demographic questionnaire, telephone interview at six and 12 weeks postpartum and medical record data. Setting: a public, tertiary, women's hospital in Melbourne, Australia. Participants: 43 women with diabetes in pregnancy (requiring insulin). Findings: cardiotocographs were undertaken after the first expressing episode and none of the infants showed any sign of fetal compromise. Forty per cent of infants received formula in the 24hours postpartum. The proportion of infants receiving any breast milk at six weeks was 90%, and this decreased to 75% at 12 weeks. No women showed evidence of hypoglycaemia post expressing.

The intervention was positively received by most women; 95% said that they would express antenatally again if the practice proved to be beneficial. The amount of colostrum varied according to the number of expressions, the length of time in the study and the time spent expressing, with a median of 14 days expressing and 39.6ml of colostrum obtained. Key conclusions: the small number of women in this pilot was not an adequate number to examine safety or efficacy, but this study does provide evidence that it would be feasible and desirable to conduct a randomised controlled trial of antenatal milk expressing for women with diabetes requiring insulin in pregnancy. Implications for practice: it is important that this widespread practice undergoes rigorous evaluation to assess both efficacy and safety. Until such evidence is available, the authors suggest that the routine encouragement of antenatal milk expressing in women with diabetes in pregnancy should cease.
CINAHL
An Ethical Dilemma: Should Recommending Antenatal Expressing and Storing of Colostrum Continue?
No abstract

Effect of Antenatal Expression of Breast Milk at Term in Reducing Breast Feeding Failures
Lt Col G Singh (Classified Specialist (Obst & Gynae)) Medical Journal Armed Forces India Volume 65, Issue 2, April 2009, Pages 131–133
Background: Though breast feeding is natural, during the first 2–3 days, when enough breast milk is not available with mother, she may introduce bottle feeding erroneously for improving nutrition to her baby. We studied the effect of antenatal expression of breast milk at term in reducing breast feeding failure as compared to conventional method of initiation of breast feeding.
Methods: A prospective study was carried out in 180 booked cases at term. Daily expression of breast milk at least once a day after 37 weeks of pregnancy was introduced in randomly selected 90 pregnant ladies. Prior examination was done to exclude any inverted or cracked nipples and appropriate treatment instituted.
Result: The study group who expressed breast milk daily after 37 weeks did not find it difficult to initiate breast feeding after vaginal or cesarean delivery. Sufficient milk started flowing within half an hour of initiation of breast feeding in most 85 (94.4%) subjects of study group as compared to 63 (70%) patients of control group, which was statistically significant. There was no increase in any delivery complication. There were two partial breast feeding failures in control group but none in study group.
Conclusion: Daily antenatal breast milk expression after 37 completed weeks of pregnancy significantly reduced the time for establishing full breast feeding and reduced breast feeding failures.

Expressing Milk before Birth: A Tool for Use in Special Circumstances Breast Feeding USA
Journal of Diabetes Nursing, ‘Colostrum harvesting and type 1 diabetes’, March 2005
https://breastfeedingusa.org/content/article/expressing-milk-birth-tool-use-special-circumstances

An Ethical Dilemma: Should Recommending Antenatal Expressing and Storing of Colostrum Continue?
A randomised controlled trial is being considered to examine the safety or efficacy of antenatal expressing and storage of colostrum. Considering that the practice is widespread an ethical dilemma would arise as the control group of mothers would not be educated about how to express and store their colostrum and if their infant became hypoglycaemic artificial infant milk based on cow’s milk, with all its proven association with Type 1 diabetes, would need to be given.
http://www.health-e-learning.com/resources/articles/206-coxcolostrum
Ulcerative Colitis, Pregnancy, Prenatal Expression and Breastfeeding.
Breastfeeding Review, 01 November 2006, vol./is. 14/3(17-19), 07292759 Barlow C
I have been encouraged to share my breastfeeding experience, and in doing so I hope that it might help those in similar circumstances to make decisions, and also be of interest to health professionals working in lactation. I was diagnosed with ulcerative colitis at 28 years of age. The chronic inflammation of the colon is manifested by abdominal pain, painful diarrhea (sometimes with blood and mucous), weight loss and tiredness.
CINAHL

No Need to Complement Breastmilk... 'Antenatal Expression of Colostrum' (April 2001).
Practising Midwife, 01 June 2001, vol./is. 4/6(41-41), 14613123 Hartwell L
Source: CINAHL

Antenatal Expression of Colostrum.
Practising Midwife, 01 April 2001, vol./is. 4/4(32-35), 14613123 Oscroft R
Ruth Oscroft highlights the advantages of early preparation for breastfeeding.
CINAHL

Management Strategies for Promoting Successful Breastfeeding.
Nurse Practitioner, 01 June 1993, vol./is. 18/6(50-55), 03611817
Bear K; Tigges BB
Clinicians can promote a successful breastfeeding experience by providing support, anticipatory guidance and practical information. This article presents the components of early follow-up and guidelines for assessment. Management strategies for common problems are discussed, such as nipple soreness, cracked nipples, plugged ducts and mastitis, insufficient infant weight gain, perceived inadequacy of milk supply, breastmilk jaundice, sexual adjustment and failure at breastfeeding. Breastfeeding guidelines for employed mothers and adoptive mothers are indicated. Source: CINAHL

Assisting the Employed Breastfeeding Mother.
Journal of Nurse-Midwifery, 01 January 1990, vol./is. 35/1(26-34), 00912182
Auerbach KG
Breastfeeding and employment are often viewed as mutually exclusive activities. However, women who choose to breastfeed are more likely than other mothers to return to paid employment outside the home, and many of these mothers want to continue breastfeeding. The midwife is in a unique position to assist these mothers as they make plans for infant feeding during their pregnancy, while they are learning how to breastfeed, and after they have returned to the labor force. This paper presents relevant research findings and specific guidelines designed to assist the midwife in counseling mothers who are planning to breastfeed while employed outside the home. The author suggests that establishing lactation before the return to employment is a key to enabling breastfeeding to continue as long as the mother wishes. The importance of expressing milk during periods of separation is discussed. Key questions to ask when recommending breast pumps are identified. Source: CINAHL
Expressing and Storing Colostrum Antenatally for use in the New born Periods: Expressing Your Milk Antenatal Information and Advice for Diabetic Mothers-To-Be
Sandwell and West Birmingham Hospitals NHS Trust April 2012
Request from LKRS

Breastfeeding—Antenatal Expression of Colostrum Australia Patient Leaflet
There are several reasons why a baby may experience difficulties with feeding or maintaining their blood sugar levels after birth and; therefore, may require supplementary feeds. These include infants:
- whose mother experienced diabetes in pregnancy
- with a cleft lip and/or palate identified during pregnancy
- with congenital conditions such as Down syndrome or cardiac complications
- diagnosed with intrauterine growth restriction
- who are born prematurely.

Dorset County Hospital Breast Feeding Policy
Mothers can be shown how to harvest colostrum and encouraged to express antenatally from 36 weeks gestation.

New Zealand Antenatal Breast Milk Patient Leaflet New Zealand
Antenatal Expression of Colostrum Australian Breast Feeding Association
The antenatal expression of colostrum is becoming more common. Several maternity hospitals in Australia have developed protocols regarding this practice
https://www.breastfeeding.asn.au/bfinfo/antenatal-expression-colostrum