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[Intervention Review]

Antenatal breast examination for promoting breastfeeding

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ABSTRACT

Background

The rationale for antenatal breast examination has included the need to determine whether any problems with breastfeeding could be anticipated, using the time during examination as an opportunity for the healthcare provider to introduce and discuss the importance of breastfeeding, and for the detection of breast cancer during pregnancy. Despite these purported benefits of antenatal breast examination, whether there is evidence that it should be recommended for all pregnant women remains unclear.

Objectives

To determine the effect of antenatal breast examination(s) on the initiation of breastfeeding.

Search methods

We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (March 2008).

Selection criteria

All randomised controlled trials of the effects of antenatal breast examination, with a concurrent comparison group.

Data collection and analysis

Two review authors independently assessed trial quality and extracted data.

Main results

We identified no randomised controlled trials.

Authors' conclusions

Ideally, policies that govern the care of pregnant women should be evidence based. There is no doubt that breastfeeding is beneficial for both mother and infant. However, there is no evidence to support the notion that antenatal breast examinations are effective in promoting breastfeeding, nor any evidence on other potential effects of antenatal breast examination, such as the detection of breast anomalies or satisfaction with care.

PLAIN LANGUAGE SUMMARY

Breast examination during pregnancy for promoting breastfeeding

The rationale for breast examination during pregnancy is to determine whether any problems with breastfeeding can be anticipated and to use the opportunity for the healthcare provider and pregnant woman to discuss breastfeeding. Examination by a healthcare provider is recommended in some countries. Breast examination can also be performed by the pregnant woman herself. Furthermore, breast examination during pregnancy has been recommended as a screening method for breast cancer, although no evidence has been found to support breast examination by a doctor, nurse or the woman as a primary screening technique for breast cancer. A woman's breasts are often tender and swollen during pregnancy. This makes examination difficult and potentially compounds a woman's feelings of discomfort or vulnerability. Some women may find a clinical breast examination during pregnancy intrusive, and identification of flat or inverted nipples may actually act as a deterrent to breastfeeding. No randomised controlled trials were identified to guide a decision on whether antenatal breast examination promotes breastfeeding. Ideally, policies that govern the care of pregnant women should be evidence based and impact on any disease outcomes.

BACKGROUND

Breast examination during pregnancy may be performed by a healthcare provider or by the pregnant woman herself. The rationale for antenatal breast examination has included the need to determine whether any problems with breastfeeding could be anticipated, using the time during examination as an opportunity for the healthcare provider to introduce and discuss the importance of breastfeeding, and for the detection of breast cancer during pregnancy. Despite these purported benefits of antenatal breast examination, whether there is evidence that it should be recommended for all pregnant women remains unclear.

Antenatal breast examination to determine whether any problems with breastfeeding could be anticipated typically included identification of the presence of flat or inverted nipples so that breast shells or nipple exercises (for example, Hoffman's exercises) could be prescribed to remedy the situation. Randomised controlled trials, however, have found that these interventions did not affect whether or not a woman was able to breastfeed successfully (Alexander 1992; MAIN 1994). Moreover, it was reported that 13% of the women approached during one of the trials who were intending to breastfeed decided not to breastfeed after being told that they had a potential problem (Alexander 1992). Therefore, antenatal breast examination for the purpose of treating flat or inverted nipples to prepare women for breastfeeding was not only found to be ineffective, but it may also act as a deterrent to breastfeeding. A Cochrane protocol assessing the effectiveness of nipple care on the duration of breastfeeding has been published (Blyth 2004).

More recently, in developed countries in particular, it has been hypothesised that as more women postpone childbirth until later in life, breast cancer in pregnancy will become an increasing concern (Woo 2003). Thus, antenatal breast examination has been recommended as a screening method for breast cancer during pregnancy. In countries where national breast screening programmes are in place, however, it is only routinely offered to women aged 50 and older and usually through mammography rather than breast examination. Furthermore, no evidence has been found to support breast examination by a doctor, nurse or the women themselves as a primary screening technique for breast cancer (SIGN 2005).

Despite this lack of evidence, breast self examination (BSE) is encouraged, and examination by a healthcare provider in the antenatal period continues to be recommended in some countries, such as the USA and Canada (NCI 2004; SOGC 2002). While potential harms from BSE are less obvious, many women may find a clinical breast examination during pregnancy intrusive. In addition, breasts are often tender and swollen during pregnancy making examination difficult and potentially compounding a woman's feelings of uncomfortableness or vulnerability when the examination is conducted by a healthcare provider.

Although it is unclear how common the practice of antenatal breast examination is globally, it is clear that some countries continue to recommend antenatal breast examination. The aim of this review is to examine the effect of antenatal breast examination(s) on the promotion of breastfeeding.

OBJECTIVES

The main objective of this review is to determine the effect of antenatal breast examination(s) on the initiation of breastfeeding.

The secondary objectives of this review are to assess other potential effects of antenatal breast examination, such as providing opportunities to discuss breastfeeding with women and the detection of breast abnormalities.

METHODS

Criteria for considering studies for this review

Types of studies

We considered all randomised controlled trials of the effects of antenatal breast examination, with a concurrent comparison group, for inclusion. We excluded quasi-randomised controlled trials, in which allocation was, for example, by alternation or reference to case record number or to dates of birth.

Types of participants

All pregnant women attending antenatal care at least once.

Types of interventions

Breast examination, for any purpose, conducted at least once during an antenatal care visit, compared with 'usual' care (that is, that which does not include antenatal breast examination).

Types of outcome measures

The primary outcome measure is the rate of breastfeeding initiation in all pregnant women after birth (as defined by trial authors).
Secondary outcomes include:

- success of breastfeeding (defined as any breastfeeding at four to six weeks after birth);
- duration of exclusive breastfeeding ('exclusive' as defined by trial authors);
- discontinuation of breastfeeding;
- satisfaction with breastfeeding;
- preterm labour and delivery (prior to 37 weeks);
- maternal anxiety;
- satisfaction with care;
- satisfaction with breast examination;
- knowledge about the importance of exclusive breastfeeding;
- additional breast examinations undertaken;
- detection of breast anomalies (for example, breast cancer, flat/inverted nipples);
- referrals for diagnostic tests (for example, biopsy, scan).

Search methods for identification of studies

Electronic searches

We searched the Cochrane Pregnancy and Childbirth Group's Trials Register by contacting the Trials Search Co-ordinator (March 2008).

The Cochrane Pregnancy and Childbirth Group's Trials Register is maintained by the Trials Search Co-ordinator and contains trials identified from:

1. quarterly searches of the Cochrane Central Register of Controlled Trials (CENTRAL);
2. weekly searches of MEDLINE;
3. handsearches of 30 journals and the proceedings of major conferences;
4. weekly current awareness alerts for a further 44 journals plus monthly BioMed Central email alerts.

Details of the search strategies for CENTRAL and MEDLINE, the list of handsearched journals and conference proceedings, and the list of journals reviewed via the current awareness service can be found in the 'Specialized Register' section within the editorial information about the Cochrane Pregnancy and Childbirth Group.
Trials identified through the searching activities described above are each assigned to a review topic (or topics). The Trials Search Co-ordinator searches the register for each review using the topic list rather than keywords.
We did not apply any language restrictions.

Data collection and analysis

We identified no randomised controlled trials. If we identify trials in the future, we plan to collect and analyse data as described in Appendix 1.

RESULTS

Description of studies

We identified no randomised controlled trials from the search strategy .

Risk of bias in included studies

We identified no randomised controlled trials from the search strategy.

Effects of interventions

We identified no randomised controlled trials from the search strategy.

DISCUSSION

We located no randomised controlled trials (RCTs) that examined the effects of antenatal breast examination.

There is potential for both harm and benefit from antenatal breast examinations. While antenatal breast examination may be used as an opportunity to discuss the importance of breastfeeding, many women may find a clinical breast exam during pregnancy intrusive. Although it is recommended as routine clinical practice in some countries (NCI 2004; SOGC 2002), we found no studies to demonstrate that it is effective in promoting breastfeeding.

An RCT that compared mothers who received a 30-minute counselling session on breastfeeding technique with mothers who did not receive any counselling found no difference in the frequency of exclusive breastfeeding during the first 30 days after birth (de Oliveira 2006), suggesting that it is unlikely that discussion during a single antenatal breast examination would effect initiation of breastfeeding. Even if discussion raised during an antenatal breast examination were effective in initiating breastfeeding, there is no conceivable reason that the same discussion could not be raised without having to perform a breast examination. Indeed, it has been shown that postnatal interventions involving support by maternity ward staff and clinicians can increase the number of women who are exclusively breastfeeding at four weeks after birth (Labarere 2005). Another study on the use of breast shells and Hoffman's exercises reported that 13% of women who were intending to breastfeed decided not to after being told they had a potential problem (Alexander 1992) indicating that antenatal breast exam could, in fact, deter women from initiating breastfeeding.

The argument that breast cancer in pregnancy will become an increasing concern as more women, in developed countries in particular, postpone childbirth until later in life (Woo 2003) is another potential justification for routine antenatal breast examination. During pregnancy, however, the breasts often become tender and swollen (Kitzinger 2003), which can make the examination uncomfortable for the mother and diagnosis difficult for the clinician (Moore 2000). Rather than routine breast examination, it may be enough to encourage women to report any changes that they notice in their breasts to their GP or carer. But no evidence has been found to support breast examination by a doctor, nurse or the women themselves as a primary screening technique for breast cancer (SIGN 2005).

Ideally, policies that govern the care of pregnant women should be evidence based. There is no doubt that breastfeeding is beneficial for both mother and infant. However, there is no evidence to support the notion that antenatal breast examinations are effective in promoting breastfeeding, nor any evidence on other potential effects of antenatal breast examination, such as the detection of breast anomalies or satisfaction with care.

AUTHORS' CONCLUSIONS

Implications for practice

We identified no randomised controlled trials to guide a decision on whether antenatal breast examination should be recommended for the promotion of breastfeeding.

Implications for research

There is a need to evaluate the potential harms and benefits of antenatal breast examination. In particular, countries that recommend routine antenatal breast examination should conduct appropriate studies to justify a procedure that some women may find intrusive. Studies should include an assessment of other effects of antenatal breast examination, such as satisfaction with care and success of breastfeeding.

The effectiveness (or lack thereof) of antenatal breast examination on the initiation of breastfeeding needs to be assessed using randomised controlled trials that compare women who do and do not receive breast examinations. Studies may or may not include other interventions to promote breastfeeding. Consideration should also be given to trials which assess the effectiveness of antenatal breast examination for the detection of breast cancer, investigating whether antenatal breast examination impacts disease outcome.

ACKNOWLEDGEMENTS

As part of the pre-publication editorial process, this review has been commented on by two peers (an editor and referee who is external to the editorial team), a member of the Pregnancy and Childbirth Group's international panel of consumers and the Group's Statistical Adviser.

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* *Indicates the major publication for the study*

APPENDICES

Appendix 1. Data collection and analysis

Using the standard methods of the Cochrane Collaboration to determine trials for inclusion (Higgins 2006), we will independently assess the titles and abstracts of all studies identified to determine whether each article might meet the predetermined eligibility criteria, such as: includes pregnant women who have attended antenatal care and assesses one or more of the outcomes to be measured. In the presence of doubt about article inclusion, the decision will be taken at the next stage at which the full text of the article will be obtained to clarify doubts about eligibility criteria. If required, we will request further information or data from trial authors. We will resolve discrepancies in selecting studies by discussion. Excluded studies will be detailed in the 'Characteristics of excluded studies' table.

Quality assessment

We will extract information regarding the methodological quality on a number of levels. Assessment of selection bias will examine the process involved in the generation of random sequence and the method of allocation concealment. We will judge these as adequate or inadequate using the following criteria.

Methodology

Allocation concealment

Adequate: assignment to groups was determined by central off-site randomisation, sequentially numbered, sealed, opaque envelopes or other appropriate schemes that could not be influenced by the investigators and where the person who generated the allocation scheme did not administer it.Unclear: 'random' or 'concealed' stated without further explanation.
Inadequate: alternation, the use of case record numbers, dates of birth or day of the week, coin toss and any procedure for which allocations could have been foreseen in advance of, or during, enrolment.

For completeness of follow up

(A) Adequate: less than 20% of participants withdrawn or lost to follow up;
(B) unclear;
(C) inadequate: 20% or more of participants withdrawn or lost to follow up.

For blinding of outcome assessment

(A) Adequate: the investigator who assesses the results did not know the allocated treatment;
(B) unclear;
(C) not possible to blind: for self-reported outcomes such as maternal anxiety and satisfaction with care;
(D) no blinding: the investigator knew the allocated treatment.
Double blinding is impossible in these kinds of trials, as the participants know which intervention they receive. Blinding of those assessing the results (single blinding) will however be highlighted and considered in a separate sensitivity analysis.

Analysis

We will extract data independently and compare them. We will conduct data management and analysis using Review Manager software (RevMan 2008). We will resolve differences in data extraction by consensus, referring back to the original article.
For individual trials, we will report mean differences with 95% confidence intervals for continuous variables. We will report relative risks and risk differences (with 95% confidence intervals) for categorical variables. For the meta-analysis, we will calculate mean differences (with 95% continuous intervals) for continuous variables and relative risks and risk differences (with 95% confidence intervals) will be calculated for categorical variables, where possible. If the information is provided by the study, we will use an intention-to-treat analysis. We will initially analyse all data with a fixed-effect model. We will apply the I^2 statistic to describe the proportion of variability in effect estimates that is due to heterogeneity. We will consider an I^2 value of more than 50% as substantial heterogeneity. If heterogeneity is detected, we will perform subgroup and sensitivity analyses. Heterogeneity that is not explained by subgroup and sensitivity analyses will be modelled using a random-effects analysis, which assumes that the effect size varies across studies.

Subgroup analyses

To assess whether the effect of the intervention works differently in particular groups of subjects and if the amount of data permits, we will conduct subgroup analyses according to the following:

1. women who have previously breastfed versus women who have not;
2. primiparous women versus parous women.

Sensitivity analyses

We will use sensitivity analyses to assess robustness of results with regards to allocation concealment, blinding of outcome assessors, losses to follow up and other study characteristics. We will perform these analyses in order to explore the influence of the following factors on effect size:

1. repeating the analysis, taking account of study quality, as previously specified in quality assessment section. We will compare the results of high-quality studies with those of poorer-quality studies, where studies rated A for all quality criteria will be compared with those rated B or C;
2. repeating the analysis excluding any very large or long-term trials to establish how much they dominate the result.

We will use funnel plots and a simple graphical test to assess for evidence of bias (Egger 1997).

WHAT'S NEW

Last assessed as up-to-date: 30 March 2008.

Date	Event	Description
14 December 2007	Amended	Converted to new review format

CONTRIBUTIONS OF AUTHORS

J Thomas (JT) and SJ Lee (SJL) conceived the topic for the review. SJL drafted the protocol and review and revised it in response to the referees' comments. JT contributed substantially to the intellectual content of the protocol and review, both in terms of the original design and for the revisions.

DECLARATIONS OF INTEREST

None known.

INDEX TERMS

Medical Subject Headings (MeSH)

*Breast; *Breast Feeding; *Physical Examination; *Prenatal Care; Breast Self-Examination

MeSH check words

Female; Humans; Pregnancy