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Induction of labour in women with normal pregnancies at or beyond term

Epidural with intermittent (automated mandatory bolus) versus constant delivery (basal infusion) for maintaining pain relief in childbirth

Immersion in water in labour and birth

Epidurals for pain relief in labour

Induction of labour in women with normal pregnancies at or beyond term

Authors: Middleton P, Shepherd E, Crowther CA

What is the issue?

A normal pregnancy lasts about 40 weeks from the start of the woman's last menstrual period, but anything from 37 to 42 weeks is considered as being at term (within the normal range). If a pregnancy goes too long, a woman and her clinician may wish to intervene to bring the birth on, for example, by induction.

Why is this important?

Births after 42 weeks' gestation may slightly increase risks for babies, including a greater risk of death (before or shortly after birth). However induction of labour may also have risks for mothers and their babies, especially if women are not ready to labour. No tests can predict if babies would be better to stay inside their mother or if labour should be induced to make the birth happen sooner. Many hospitals therefore have policies for how long pregnancies should continue. This update (originally published in 2006 and subsequently updated in 2012) looks to see if inducing labour at a set time at or beyond term, could reduce risks for the babies.

What evidence did we find?

We searched for evidence up 9 October 2017 and identified 30 trials with over 12,000 women. The trials took place in Norway, China, Thailand, the USA, Austria, Turkey, Canada, UK, India, Tunisia, Finland, Spain, Sweden and the Netherlands. The evidence was mostly of moderate quality. The trials compared a policy to induce

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labour at or later than term (usually after 41 completed weeks of gestation (> 287 days)) with waiting for labour to start and/or waiting for a period before inducing labour.

We found that there were fewer deaths of babies in hospitals with a policy to induce when a pregnancy was continuing beyond term (moderate-quality evidence). Fewer caesarean births were required with induction compared with waiting, but more assisted vaginal births were required with induction. There were fewer admissions to the intensive care nursery and fewer low Apgar scores at five minutes after birth (a simple test to test babies' health) in the induction groups compared with waiting (moderate-quality evidence). We found that there were no clear differences between a policy to induce at or later than term or waiting in the risks of mothers having trauma to their perineum or bleeding after birth (both low-quality evidence), in the length of their hospital stay (very-low quality evidence), or in their babies having trauma (low-quality evidence). None of the trials provided information on breastfeeding at discharge from hospital, postnatal depression, or whether the babies had encephalopathy (early abnormal neurological function), or child development.

What does this mean?

A policy of labour induction compared with expectant management is associated with fewer deaths of babies and fewer caesarean sections; but more assisted vaginal births. Although the chances of babies dying are small, it may help to offer women appropriate counselling to make an informed choice between induction of labour for pregnancies at, or later than, term - or waiting for labour to start and/or waiting before inducing labour.

The best time to offer induction of labour to women at or beyond term is not yet clear and warrants further investigation. The risk profiles of women as well as their values and preferences could also be considered.

Epidural with intermittent (automated mandatory bolus) versus constant delivery (basal infusion) for maintaining pain relief in childbirth

Authors: Sng B, Zeng Y, de Souza NA, Leong W, Oh T, Siddiqui F, Assam PN, Han NR, Chan ESY, Sia AT

Background

Epidural analgesia involves the injection of pain relieving medication into the epidural space (area just outside the spinal column). It is an effective form of pain relief during childbirth. The medication is usually given via a programmable pump that injects the medication through a small tube positioned in the epidural space. Traditionally the medication was delivered at a constant rate known as a 'basal infusion'. Recently there has been interest in delivering the medication as an intermittent dose (every now and again) instead. This so-called 'bolus dosing', or 'automated mandatory bolus', may be better for pain relief. This study reviewed the evidence

regarding two interventions for maintaining epidural analgesia in childbirth: automated mandatory bolus and basal infusion.

Study characteristics

The evidence is current to January 2018. We found 12 studies involving 1121 women with uncomplicated pregnancies. We did not specifically assess the impact of the funding sources on the studies. The people taking part in the trials we looked for (known as randomized controlled trials) are randomly assigned to either the group receiving the treatment under investigation or to a group receiving standard treatment as the control. This is to reduce any bias that either the investigators or the participants of the trial may have.

Key results

We found that automated mandatory bolus decreases the risk of breakthrough pain (pain requiring medical intervention from an anaesthesiologist) compared with basal infusion during childbirth. It does this without increasing the risk of a caesarean section; the risk of instrumental delivery (whether the obstetrician intervenes to assist delivery using an obstetric forceps or vacuum device); or the duration of childbirth. It may also reduce the dose of medication required on a per hourly basis. In addition, five of seven studies found that mothers preferred the automated mandatory bolus over basal infusion.

Certainty of the evidence

The evidence was of moderate-certainty for all the outcomes we measured, with the exception of the risk of caesarean delivery and risk of instrumental delivery, which had only low-certainty evidence.

Immersion in water in labour and birth

Authors: Cluett ER, Burns E, Cuthbert A

What is the issue?

To assess the effects of water immersion (waterbirth) during labour and/or birth (first, second and third stage of labour) on women and their infants.

Why is this important?

Many women choose to labour and give birth in water (water immersion) and this practice is becoming more popular in many countries, particularly in midwifery-led units. Therefore, it is important to understand more about the benefits of water immersion in labour and birth for women and their newborns, along with any risks. It is important to examine whether immersion in water during the first and/or the second stage of labour has the potential to maximise women's ability to manage labour pain, and to have a normal birth without increasing the risk of an adverse (harmful) event. Adverse events might be an increased risk of infection for women and/or their newborn; an increased likelihood of a serious tear to the perineum (the area between anus

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and vagina), and it may make estimating blood loss more difficult in the event of a haemorrhage. In assessing the benefits, we consider well-being to cover both physical and psychological health.

What evidence did we find?

We included 15 trials (3663 women). All the trials compared immersion in water with no immersion in water: eight during the first stage of labour, two during the second stage of labour (waterbirth) only, four during the first and second stages of labour, and one early versus late immersion during the first stage of labour. The evidence was of moderate to very low quality. No trial compared immersion in water with other forms of pain management.

Water immersion during the first stage of labour probably results in fewer women having an epidural, but probably makes little or no difference to the number of women who have a normal vaginal birth, instrumental birth, caesarean section or a serious perineal tear. We are uncertain about the effect on the amount of blood loss after birth because the quality of the evidence was very low. Labouring in water also may make little or no difference to babies being admitted to neonatal intensive care unit (NICU) or developing infections. Stillbirths and baby deaths were not reported.

Two trials compared water immersion during the second stage (birth) with no immersion. We found that immersion may make little or no difference in numbers of women who have a normal vaginal birth. It is uncertain whether immersion makes any difference to instrumental vaginal births, caesarean sections, numbers of babies admitted to NICU, babies' temperatures at birth and fever in babies during the first week, because the quality of the evidence was found to be very low for all of these outcomes. Epidurals were not relevant to this stage of labour. Serious perineal tears and blood loss after birth were not reported in either trial.

Only one trial (200 women) compared women who got into the water early and late in their labour but there was not enough information to show any clear differences between the groups.

What does this mean?

Labouring in water may reduce the number of women having an epidural. Giving birth in water did not appear to affect mode of birth, or the number of women having a serious perineal tear. This review found no evidence that labouring in water increases the risk of an adverse outcome for women or their newborns. The trials varied in quality and further research is needed particularly for waterbirth and its use in birth settings outside hospital labour wards before we can be more certain of these effects. Research is also needed about women's and caregivers experiences of labour and birth in water.

Epidurals for pain relief in labour

Authors: Anim-Somuah M, Smyth RMD, Cyna AM, Cuthbert A

What is the issue?

We set out to assess the effectiveness of all kinds of epidural analgesia (including combined-spinal-epidural) on the mother and the baby, when compared with non-epidural or no pain relief during labour.

Why is this important?

Pain relief is important for women in labour. Pharmacological methods of pain relief include breathing in of nitrous oxide, injection of opioids and local analgesia with an epidural for a central nerve block. Epidurals are widely used for pain relief in labour and involve an injection of a local anaesthetic into the lower region of the back close to the nerves that transmit pain. Epidural solutions are given by bolus injection (a large, rapid injection), continuous infusion or using a patient-controlled pump. Lower concentrations of local anaesthetic when given together with an opiate allow women to maintain the ability to move around during labour and to actively participate in the birth. Combined-spinal-epidural involves a single injection of local anaesthetic or opiate into the cerebral spinal fluid for fast onset of pain relief, as well as insertion of the epidural catheter for continuing pain relief. Side effects such as itchiness, drowsiness, shivering and fever have been reported. Rare but potentially severe adverse effects of epidural analgesia can occur, such as severe long-lasting headache after the injection, or nerve injury.

What evidence did we find?

We searched for evidence in April 2017 and identified 40 trials, involving over 11,000 women, that contributed information to this review. The trials varied in the quality of their methods.

All but six studies compared epidural analgesia with injected opioid drugs. Epidurals may relieve labour pain more effectively than opioids, and more women may be more satisfied with epidural as pain relief. Overall, women using epidural analgesia may be more likely to require forceps or ventouse to assist with the birth when compared with opioid drugs. However we did not see this effect in studies conducted since 2005, where the use of lower concentrations of local anaesthetic and more modern epidural techniques such as patient-controlled epidural analgesia (PCEA) were more likely. Epidural in comparison to opioids probably makes little or no difference to caesarean section rates, women with long-term backache, effects on the baby at birth or the number of babies who were admitted to neonatal intensive care.

Women who used epidurals can have problems passing urine and can suffer fever. There are highly variable findings such as a longer labour, experiencing very low blood pressure, and being unable to move for a period of time after the birth (motor blockade), probably due to higher concentrations of local anaesthetic being used in the epidural or the use of epidural infusions rather than epidural doses of pain relief administered at

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intervals. However, women who received opioid drugs also showed some side effects such as a slowing of their breathing so that they needed to wear an oxygen mask, and more nausea and vomiting. More babies whose mothers received opioids were given a drug to counteract the effects of the opioids. There was no difference between women in the epidural or opioid groups for postnatal depression, headaches, itching, shivering, or drowsiness.

Women with epidurals reported less pain compared to women with placebo or no treatment, or acupuncture. Pain was not reported in the trials that compared epidural with inhaled analgesia, or continuous support.

What does this mean?

Epidurals may reduce pain during labour more effectively than any other form of pain relief, and may increase maternal satisfaction with pain relief. However, some women who have an epidural instead of opioid drugs may be more likely to have an assisted vaginal birth, but this finding probably reflects the higher concentrations of local anaesthetics used traditionally rather than the low concentrations of modern epidurals. Further research would be helpful, using more consistent measures of reducing the adverse outcomes with epidurals.

If you have any questions or comments with regard to the above document please feel free to contact me.

Kind regards

Dr Vanessa Jordan PhD

New Zealand Cochrane Fellow
Cochrane New Zealand
Academic Co-ordinator: PoplHlth 711: Systematic reviews and Meta Analysis
Department Obstetrics and Gynaecology
Auckland University
Private Bag 92019
Auckland 1142
New Zealand
Ph. +64 9 9239490
Fax +64 9 303 5969
Mobile: 027 540 2212
E-mail: v.jordan@auckland.ac.nz