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Patient-controlled analgesia with remifentanil versus alternative analgesic methods for pain relief in labour

Authors: Weibel S, Jelting Y, Afshari A, Pace N, Eberhart LHJ, Jokinen J, Artmann T, Kranke P

What is the issue

Pain relief during labour can be provided in a number of different ways. These include epidural analgesia, by injection of anaesthetic medication around the nerve roots in the spine, intramuscular or continuous intravenous opioids, and inhalational analgesia such as with nitrous oxide. Remifentanil is a relatively recently introduced potent, short-acting opioid, which gives control over pain relief.

Why is this important

Labour pain may be associated with adverse effects for the mother and her baby and can result in prolonged labour.

This review aimed to compare remifentanil given via a patient-controlled analgesia (PCA) device with other opioids given via the same way or via an intramuscular or intravenous injection, with epidural analgesia, with different regimens of remifentanil (PCA) or with remifentanil as a continuous intravenous infusion, with inhalational analgesia, or with no treatment for women during normal vaginal birth. Our main outcomes of interest were satisfaction with pain relief, pain scores, side effects for the women and their babies, need for additional analgesia and the risk for a caesarean section.

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What evidence did we find

A search of the literature was performed in November/December 2015 and updated in December 2016. We found 20 randomised controlled trials with 3569 women. The methodological quality of studies was moderate to poor.

Women who received PCA with remifentanil were more satisfied with their pain relief than women receiving other opioids either by intravenous or intramuscular injection (four trials, 216 women, *very low-quality evidence*). Remifentanil (PCA) provided stronger pain relief at one hour than the other opioids by intravenous or intramuscular injection (three trials, 180 women) and using PCA (three trials, 215 women), both *very low-quality evidence* but with *moderate-quality evidence* that remifentanil (PCA) was associated with a reduced need for additional analgesia compared to other intravenous or intramuscular opioids (three trials, 190 women). The number of women with need for additional analgesia was not different with remifentanil (PCA) or opioids (PCA) (three trials, 215 women, *low-quality evidence*). Remifentanil (PCA) increased the risk for a maternal respiratory depression compared to other intramuscular opioids (one trial, 36 women, *very low-quality evidence*). The newborn babies were not more likely to have low Apgar scores at five minutes after birth under remifentanil (PCA) compared to other intravenous or intramuscular opioids (one trial, 88 newborns, *very low-quality evidence*), but newborns have a lower risk under remifentanil (PCA) compared to other opioids (PCA) (one trial, 17 newborns, *very low-quality evidence*). Remifentanil (PCA) was not associated with an increased risk for caesarean section when compared with intravenous or intramuscular opioids (four trials, 215 women, *low-quality evidence*), but compared to other opioids (PCA) (two trials, 143 women, *very low-quality evidence*).

Women were slightly less satisfied with remifentanil (PCA) compared to an epidural for pain relief (seven trials, 2135 women, *very low-quality evidence*). Pain intensity was higher in the remifentanil (PCA) group compared to the epidural group (six trials, 235 women, *low-quality evidence*), with a higher need for additional analgesia (six studies, 1037 women, *moderate-quality evidence*). Remifentanil (PCA) increased the risk for a maternal respiratory arrest compared to an epidural (one trial, 38 women, *very low-quality evidence*). Remifentanil (PCA) was not associated with an increased risk of respiratory depression in mothers compared to an epidural (three trials, 687 women, *low-quality evidence*). The newborn babies were not more likely to have low Apgar scores at five minutes after birth (five trials, 1322 newborns, *low-quality evidence*). The number of women requiring caesarean section was not different with remifentanil (PCA) or epidural analgesia (*moderate-quality evidence*).

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What does this mean

Our confidence in the results of the current review is limited since the quality of evidence is mostly low. No definite conclusion can be drawn with respect to side effects for women and newborns as well as for the comparators remifentanil given via a continuous infusion or via PCA with a different regimen since there are too few studies with few participants that reported on these. No eligible study examined remifentanil (PCA) versus inhalational analgesia or no treatment. More research is needed, especially on side effects of remifentanil (PCA) for women and newborns.

Inserting a contraceptive implant soon after childbirth

Authors: Sothornwit J, Werawatakul Y, Kaewrudee S, Lumbiganon P, Laopaiboon M

Review question

Cochrane authors compared the initiation rate, effectiveness, and side effects of insertion of a contraceptive implant (implant for birth control) soon after childbirth versus delayed insertion at postpartum visit.

Background

The spacing of pregnancies has a positive impact on health of both pregnant women and newborns. The contraceptive implant is a highly effective progestin-only method of birth control. Normally, a contraceptive implant is provided at the first (usually at six weeks) postpartum visit. However, some women do not come back, or have sex before this check-up visit. The insertion of a contraceptive implant after childbirth but before hospital discharge is worthy of consideration; it is convenient in terms of time and place, and may increase the number of women that use this method.

Study characteristics

We searched for randomised studies up to 28 October 2016. We looked at whether insertion of contraceptive implant soon after childbirth or when women come back for the first postpartum check-up affected use of this contraception method. We included three studies with a total of 410 women.

Key results

Use of a contraceptive implant was higher when it was applied right after childbirth than when it was applied four to six weeks later. There appeared to be little or no difference between the groups in the continuation rate of contraceptive implant use at 6 months. It was unclear whether there was any difference between the groups in continuation of contraceptive use at 12 months or in the unintended pregnancy rate at 12 months.

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Although vaginal bleeding and other adverse effects in the first six weeks after birth including nausea, hair loss, hirsutism, headache, and acne seem to be higher in women that receive this method a few days after childbirth rather than four to six weeks later, this finding however cannot be definitely concluded as all participants knew the nature of the intervention they received (were not blinded) and the reports of these adverse effects were not objectively assessed. It was unclear whether there was any difference between the groups at 12 months in heavy, irregular vaginal bleeding or associated severe cramping, rates of unintended pregnancy, or in measures of participants' satisfaction. Nor was it clear whether there was any difference in breastfeeding rates at 6 months. The included studies were conducted in the USA, and generalisation of these findings to other population or settings should be applied with caution.

Quality of the evidence

Overall, the quality of the evidence was moderate to very low. The main limitations were imprecision and risk of bias (related to lack of blinding and to attrition). Further good quality, well-designed randomised controlled trials will provide additional information.

Lifestyle interventions for treating women with gestational diabetes (or diabetes in pregnancy)

Authors: Brown J, Alwan NA, West J, Brown S, McKinlay CJD, Farrar D, Crowther CA

What is the issue?

Gestational diabetes (GDM), is a glucose intolerance leading to high blood glucose levels that is first recognised during pregnancy and which usually normalises after giving birth. Diabetes during pregnancy has been linked to many short-term and long-term health problems for the mother and her baby. The main way to treat GDM is through lifestyle changes such as diet, exercise and checking blood glucose levels.

Why is this important?

Women with GDM have an increased risk of developing high blood pressure during pregnancy (pre-eclampsia) and are more likely to have their labour induced. The babies of women with GDM are more likely to be large when born and this can be linked to babies having birth trauma (bones broken or nerves damaged during the birth) and the need for giving birth by caesarean section. Lifestyle interventions that include two or more components of dietary advice, physical activity, education, and self-monitoring of blood glucose are the first-line treatment for most women diagnosed with GDM. Interventions such as healthy eating and physical activity

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aim to help women maintain their blood glucose levels within a target range and to improve health outcomes for the mother and baby.

What evidence did we find?

We searched the literature (May 2016) for controlled trials comparing lifestyle intervention with a control group of women receiving usual care or another intervention. Fifteen randomised controlled trials (45 publications) are included in this review, involving 4501 women and 3768 infants. None of the trials were funded by a conditional grant from a pharmaceutical company.

For the baby, lifestyle interventions were associated with a reduction in the risk of being born large-for-gestational age (six trials, 2994 infants). The number of babies with birthweight over 4000 g (macrosomia) was lower with the lifestyle intervention, with no clear difference in the number of newborn babies experiencing low blood glucose levels (six trials, 3000 infants). The evidence was of moderate quality for these findings. Birthweight was also lower in the lifestyle intervention group.

For the mothers, introducing lifestyle interventions made no clear difference in the number of women with pregnancy-induced high blood pressure (four trials, 2796 women) or having a caesarean section (10 trials, 3545 women) based on low-quality evidence or on induction of labour (four trials, 2699 women, high-quality evidence). Similar numbers of women experienced perineal trauma or tearing (one trial, 1000 women) or developed type 2 diabetes at a maximum of 10 years after giving birth (two trials, 486 women). These findings were supported by low- to moderate-quality evidence.

More women in the lifestyle group had met their weight goals one year after giving birth, and lifestyle interventions were associated with a decrease in the risk of depression after birth, from single trials. These findings were supported by low quality evidence.

What does this mean?

Lifestyle interventions provide benefits to women with GDM and their babies. The interventions are useful as the primary therapeutic strategy and generally include, as a minimum, healthy eating, physical activity and self-monitoring of blood sugar levels.

Furture research could focus on the effective components of lifestyle interventions and the use of lifestyle interventions as the sole intervention without pharmacological treatment. Future studies also need to consider long-term outcomes for the mother and her child as a priority when planning future trials.

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

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Kind regards

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