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Non-clinical interventions for reducing unnecessary caesarean section

Authors: Chen I, Opiyo N, Tavender E, Mortazhejri S, Rader T, Petkovic J, Yogasingam S, Taljaard M, Agarwal S, Laopaiboon M, Wasiak J, Khunpradit S, Lumbiganon P, Gruen RL, Betran A

What is the aim of this review?

The aim of this Cochrane Review was to find out whether non-clinical interventions, which aim to reduce unnecessary caesarean sections, such as providing education to healthcare workers and mothers, are safe and effective. This review was first published in 2011. This review update will inform a new WHO guideline, and the scope of the update was informed by WHO's Guideline Development Group for this guideline.

Key messages

We studied a wide range of non-clinical interventions that aim to reduce unnecessary caesarean sections, mostly in high-income countries. Based on high-quality evidence, few interventions have been shown to reduce caesarean section rates without adverse effects on maternal or neonatal outcomes. These interventions are mainly aimed at healthcare professionals (nurses, midwives, physicians) and involve using: clinical guidelines combined with mandatory second opinion for caesarean section indication; clinical guidelines combined with audit and feedback about caesarean section practices; and opinion leaders (obstetrician/gynaecologist) to provide education to healthcare professionals.

What was studied in this review?

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Caesarean section is an operation used to prevent and reduce complications of childbirth. While it can be a life-saving procedure for both the mother and baby, caesarean section is not without harm and should only be carried out when necessary. Caesarean sections increase the likelihood of bleeding, maternal infections and infant breathing problems, among other complications. The number of caesarean sections performed has been increasing worldwide. Whilst there may be medical reasons for this increase, other factors, such as clinician convenience and maternal fears, may also be responsible.

What are the main results of the review?

We included 29 studies in this review. Most of the studies (20 studies) were conducted in high-income countries; none in low-income countries.

We rated the quality of the evidence from studies using four levels: very low, low, moderate, or high. Very low-quality means that we are very uncertain about the results. High-quality evidence means that we are very confident in the results.

Overall, we found eight of the 29 interventions included in the review to have a beneficial effect on at least one of our main outcomes with low-, moderate- or high-quality evidence, and no moderate- or high-quality evidence of harm:

Interventions aimed at women or families: providing childbirth training workshops for mothers and couples; relaxation training programmes led by nurses; psychosocial couple-based prevention programmes; and psychoeducation. The interventions were compared to routine practice. The quality of evidence from the studies was low.

Interventions aimed at healthcare professionals: using clinical guidelines combined with mandatory second opinion for caesarean section indication; using clinical guidelines combined with audit and feedback about caesarean section practices; and having opinion leaders (obstetrician/gynaecologist) provide education to healthcare professionals. The interventions were compared to routine practice. The quality of evidence was high.

Interventions aimed at healthcare organisations or facilities: collaborative midwifery-labourist model of care (in which the obstetrician provides in-house labour and delivery coverage, 24 hours a day, without competing clinical duties) compared to a private model of care. The quality of evidence was low.

We studied a number of other interventions and they either made little or no difference to caesarean section rates, or had uncertain effects.

Limited data were available on possible harms associated with the interventions examined in this review.

How up-to-date is this review?

The evidence is current to March 2018.

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Antihypertensive drug therapy for mild to moderate hypertension during pregnancy

Authors: Abalos E, Duley L, Steyn D, Gialdini C

What is the issue?

The aim of this review was to determine the benefits and adverse effects of blood pressure-lowering drugs (antihypertensive drugs) for pregnant women with mild to moderate hypertension (high blood pressure). The other aim was to assess the benefits and adverse effects of these drugs for their babies.

Why is this important?

During pregnancy, up to one in 10 women have blood pressure readings that are above normal. For some women, their blood pressure remains slightly high (termed 'mild to moderate high blood pressure'), with no apparent complications. Some of these women go on to develop very high blood pressure. Very high blood pressure can result in a medical emergency if it affects the woman's organs (such as her liver, or brain in the form of a stroke). Also, it can seriously affect the growth and health of her baby.

Drugs that lower blood pressure are used to treat mild to moderate high blood pressure, in the belief that this treatment will prevent the blood pressure from continuing to rise. Over the years, information from good quality research studies has been contradictory, so we cannot be sure if this drug treatment is worthwhile.

What evidence did we find?

This Cochrane Review is an update of a review that was first published in 2001 and updated in 2007 and 2014. We searched for randomised controlled trials in September 2017, and this review now includes data from 58 trials involving more than 5900 women. A total of 31 trials with 3485 women compared a number of different blood pressure-lowering drugs to a placebo or no treatment. There were a further 29 trials involving 2774 women which compared one blood pressure-lowering drug with another one.

The evidence showed that treating pregnant women who had moderately raised blood pressure with blood pressure-lowering drugs probably halved the number of the women developing severe high blood pressure (20 trials, 2558 women). However, blood pressure-lowering drugs probably had little or no effect on the risk of the baby dying (29 trials, 3365 women), and there is insufficient data on maternal deaths to make a judgement on whether this risk is lowered (five trials, 525 women).

The use of blood pressure-lowering drugs may have little or no effect on the number of the women developing pre-eclampsia (23 trials, 2851 women), or the number of women who had to change drugs because of side-effects (16 trials, 1503 women).

We found no difference in the number of babies born preterm, that is before 37 weeks (15 trials, 2141 women). There was also no difference in the number of babies born small for their gestational age (21 trials, 2686 babies).

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The quality of the evidence was mostly moderate (but for pre-eclampsia it was low). This was due to a number of small studies, and problems with the way the studies were undertaken.

The available evidence is still insufficient to demonstrate if there is any antihypertensive drug that is better than another. However, beta blockers and calcium channel blockers seem to be better than the alternative drugs for blood pressure control.

What does this mean?

More research is needed in order to confirm the true effect of antihypertensive drugs in mothers and in their babies, and to identify the drug which would be best.

Calcium supplementation during pregnancy for preventing blood pressure disorders and related problems

Authors: Hofmeyr G, Lawrie TA, Atallah ÁN, Torloni M

What is the issue?

Pre-eclampsia is evident as high blood pressure and protein in the urine. It is a major cause of death in pregnant women and newborn babies worldwide. Preterm birth (birth before 37 weeks) is often caused by high blood pressure and is the leading cause of newborn deaths, particularly in low-income countries.

Why is this important?

Evidence from randomised controlled trials shows that calcium supplements help prevent pre-eclampsia and preterm birth and lower the risk of a woman dying or having serious problems related to high blood pressure in pregnancy. This is particularly for women on low calcium diets.

What evidence did we find?

We searched for evidence on 18 September 2017, and found 27 trials. We found evidence from 13 studies (involving 15,730 women) that calcium supplementation in high doses (at least 1 gram (g) daily) during pregnancy may be a safe way of reducing the risk of pre-eclampsia, especially in women from communities with low dietary calcium and those at increased risk of pre-eclampsia. Women receiving calcium supplements may also be less likely to die or have serious problems related to pre-eclampsia (low-quality evidence) and high blood pressure. Babies may be less likely to be born preterm (low-quality evidence). The syndrome of haemolysis, elevated liver enzymes and low platelets was increased with calcium, but the absolute numbers were small (high-quality evidence). High-dose calcium did not have a clear effect on babies admitted to neonatal intensive care, or the number of stillbirths or deaths before discharge from hospital.

Further research is needed into the ideal dosage of supplementation. Limited evidence from 12 trials (2334 women) suggested that a relatively low dose of calcium may be effective in reducing pre-eclampsia, high blood pressure, and babies admitted to intensive care (however, the quality of the evidence on calcium alone was

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reduced because eight of the included trials gave other medicines alongside calcium, such as vitamin D, linoleic acid or antioxidants). Low-dose calcium did not have a clear effect on preterm birth, stillbirth or death before discharge from hospital.

One small study compared high-dose calcium with low-dose calcium. Pre-eclampsia appeared to be reduced in the high-dose group, but no other differences were found in preterm birth, or stillbirth.

What does this mean?

In settings where dietary calcium is low, supplementation is an important strategy to reduce the serious consequences of pre-eclampsia. Where high-dose supplementation is not feasible, the option of lower dose supplements (500 milligrams (mg) to 600 mg daily) might be considered in preference to no supplementation.

Progestogen for preventing miscarriage

Authors: Haas DM, Hathaway TJ, Ramsey PS

What is the issue?

Early pregnancy loss, also known as miscarriage, generally occurs in the first trimester. For some women and their partners, miscarriages can happen several times, also known as recurrent miscarriages. While there are sometimes causes for miscarriages that are found, often no clear reasons can be found. The hormone called progesterone prepares the womb (uterus) to receive and support the newly fertilized egg during the early part of pregnancy. It has been suggested that some women who miscarry may not make enough progesterone in the early part of pregnancy. Supplementing these women with medications that act like progesterone (these are called progestogens) has been suggested as a possible way to prevent recurrent miscarriage.

Why is this important?

Having miscarriages can be both physically and emotionally difficult for women and their partners. Finding a therapy to help reduce recurrent miscarriages could help them avoid a miscarriage and have a live baby.

What evidence did we find?

We searched for evidence on 6 July 2017 and identified a total of 13 trials that enrolled a total of 2556 women with a history of recurrent miscarriages. These trials found that giving progestogen medication to women with recurrent miscarriages early in their pregnancy may help lower the rates of miscarriage in that pregnancy from 26.3% to 19.4%. We believe that these findings are based on evidence of only moderate quality, so we cannot be certain about the results. We found that progestogen treatment may be most helpful for women who had had at least three miscarriages before they started the study. We did not find that giving the progestogen medication by mouth, as a shot (injection), or in the vagina was any better than any of the other ways. We also found that the trials showed that giving progestogen to women with prior recurrent miscarriages made the chances of having a live baby in the current pregnancy slightly higher. While we found evidence that giving

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progestogens to women in these groups might lower the rate of having a baby too early or having a stillbirth, this evidence was not very strong and should be backed up with more studies. We did not find evidence of improvement in other outcomes such as newborn death, low birthweight, or newborn birth defects for women given progestogens.

What does this mean?

We found evidence from randomized controlled trials that giving progestogen medication can probably prevent miscarriage for women with recurrent previous miscarriages.
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

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