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Planned caesarean section for a twin pregnancy

Authors: Hofmeyr G, Barrett JF, Crowther CA

The incidence of twins varies considerably between communities and families and has recently increased because of the number of older mothers and the use of fertility treatments and assisted conception. Infants from a twin pregnancy are at a higher risk of death around the time of birth than are infants from a singleton pregnancy. Some of this is due to a higher risk of preterm birth. The second-born twin has an increased risk of a poor perinatal outcome compared with the first-born twin.

A policy of planned vaginal birth for women with a twin pregnancy in a hospital setting is associated with a 30% to 40% rate of emergency caesarean section. When the first twin is born vaginally, there is still a risk of emergency section for the birth of the second twin. It is possible that some of the adverse outcomes may be avoided by appropriately timed delivery by caesarean section but the risks of caesarean section for the mother in the current and subsequent pregnancies must be taken into account.

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In this review we included two randomised trials comparing planned caesarean versus planned vaginal birth for twin pregnancies which together included 2864 women. For important outcomes the evidence was assessed as being of moderate quality.

For maternal mortality no events were reported in one trial and two deaths (one in each group) in the other. There was no clear evidence of differences between women randomised to planned caesarean or planned vaginal birth for death or serious illness in either the mothers or babies. No studies reported childhood disability.

The number of women undergoing caesarean section was reported in both trials. Most women in the planned caesarean group had treatment as planned (90.9%), whereas in the planned vaginal birth group 42.9% had caesarean section for at least one twin. There were no significant differences between groups for failure to breastfeed or for postnatal depression.

There is very little clear research evidence to provide guidance on the method of birth for twin pregnancies. The benefits and risks should be made available to women, including short-term and long-term consequences for both mother and babies. Future research should aim to provide more clarity on this issue as medical interventions in the birth process should be avoided unless there is reasonable clinical certainty that they will be of long-term benefit.

Taking myo-inositol as a dietary supplement during pregnancy to prevent the development of gestational diabetes

Authors: Crawford TJ, Crowther CA, Alsweiler J, Brown J

What is the issue?

This review aimed to investigate if myo-inositol is an effective antenatal dietary supplement for preventing gestational diabetes in pregnant women. Women who develop gestational diabetes have a higher risk of experiencing complications during pregnancy and birth, as well as developing diabetes later on in life. The babies of mothers who have gestational diabetes can be larger than they should be potentially causing injuries to the babies at birth. These babies are at risk of diabetes even as young children or young adults.

Why is this important?

The number of women being diagnosed with gestational diabetes is increasing around the world so finding simple and cost-effective ways to prevent women developing gestational diabetes is important. Myo-inositol is a naturally occurring sugar found in cereals, corn, green vegetables and meat that has a role in the body's sensitivity to insulin.

What evidence did we find?

We searched for studies on 2 November 2015 and included four small randomised controlled trials involving a total of 567 women who were less than 11 weeks' to 24 weeks' pregnant at the start of the trials. The quality of the evidence was assessed as *low* or *very low* and the overall risk of bias was unclear.

Myo-inositol was associated with a reduction in the rate of gestational diabetes (*low quality evidence*), reducing the incidence from 28% in women who did not take the supplement, to between 8% and 18% in the women who took it. There was no difference between groups in terms of the number of women who had hypertensive disorders of pregnancy (including pre-eclampsia, eclampsia and abnormally high blood pressure during pregnancy) (*very low quality evidence*). The trials did not provide any information about the number of babies that died (either before being born or shortly afterwards) or babies that were large-for-gestational age. There were no maternal adverse effects of therapy in the two trials that reported on this outcome (the other two trials did not mention this).

This review did not find any impact on other outcomes such as the risk of having a caesarean section (*low quality evidence*), a large baby, obstructed labour when the baby's shoulder becomes stuck (shoulder dystocia) or a baby with low blood glucose levels. This may be due to the trials being too small to detect differences in these outcomes and the outcomes not being reported by all trials. All four trials were from Italy.

The included trials did not report on a large number of other mother and baby outcomes listed in this review and nor were there any data relating to longer-term outcomes for the mother or the infant, or the cost of health services.

What does this mean?

Myo-inositol as a dietary supplement during pregnancy shows promise in preventing gestational diabetes but there is not enough evidence at this stage to support its routine use. Further large, well-designed, randomised controlled trials are required to assess the effectiveness of myo-inositol in preventing gestational diabetes and improving other health outcomes for mothers and their babies.

Ideally, future studies should consider involving women from different ethnicities and with differing risk factors for gestational diabetes. It would be useful for future studies to consider the ways that myo-inositol can be used (different doses, frequency and when to take it) and compare the intervention with a placebo control, diet and exercise or pharmacological interventions. We recommend that future studies utilise the outcomes listed in this review and that potential harms, including adverse effects are included.

Drug treatments for stopping smoking in pregnancy

Authors: Coleman T, Chamberlain C, Davey M, Cooper SE, Leonardi-Bee J

Smoking during pregnancy harms women and infants. Women who continue to smoke during pregnancy generally are poorer and more poorly educated and are more likely to have no partner or have a partner who smokes.

Medications to help stop smoking include nicotine replacement therapy (NRT), bupropion and varenicline. E-cigarettes contain nicotine and are used by some smokers to help avoid smoking. The safety and effectiveness of smoking cessation drugs and e-cigarettes is not known. This updated review sought evidence for the efficacy and safety of any smoking cessation drugs or e-cigarettes when these are used in pregnancy and found nine randomised studies that enrolled a total of 2210 women. Studies tested NRT used with behavioural support (counselling) apart from a small bupropion trial which enrolled only 11 women. Together, these showed borderline evidence to suggest that NRT combined with behavioural support, might help women to stop smoking in later pregnancy. However, when just the higher-quality, placebo-controlled trials were analysed, NRT was found to be no more effective than a placebo.

There was insufficient evidence to conclude whether or not NRT had either positive or negative impacts on rates of miscarriage, stillbirth, preterm birth (less than 37 weeks'), low birthweight (less than 2500 g), admissions of babies to neonatal intensive care or neonatal deaths or whether this affected mean

birthweights amongst infants. However, in one trial in which infants were followed to two years of age, those born to women who had been randomised to NRT were more likely to have healthy development.

Side effects observed with NRT included headache, nausea and local reactions (e.g. skin irritation from patches or foul taste from gum).

Studies that reported adherence to medication found that this was generally low and the majority of participants did not use a large proportion of the NRT that was offered or prescribed to them.

More research evidence is needed; in particular, placebo-controlled trials that test higher doses of NRT, encourage high adherence rates and follow infants into childhood are now warranted.

Fetal electrocardiogram (ECG) for fetal monitoring during labour

Authors: Neilson J

Monitoring the baby's heart using electrocardiography (ECG) plus cardiotocography (CTG) during labour provides some modest help for mothers and babies when continuous monitoring is needed.

Strong uterine contractions during labour reduce the flow of maternal blood to the placenta. The umbilical cord may also be compressed during labour, especially if the membranes are ruptured. Usually the baby has sufficient reserve to withstand this effect but some may become distressed. Electronic heart monitoring may be suggested if the doctors think the baby is not getting enough oxygen during labour. Two different methods may be used. CTG measures the baby's heart rate together with the mother's uterine contractions. An ECG measures the heart's electrical activity and the pattern of the heart beats. This involves an electrode being passed through the woman's cervix and attached to the baby's head. This review of seven randomised controlled trials, including a total of 27,403 women, found that monitoring the baby using ECG plus CTG resulted in fewer blood samples needing to be taken from the baby's scalp, and less surgical assistance with the birth, than with CTG alone. There was no difference in the number of caesarean deliveries and little to suggest that babies were in better condition at birth. The evidence was found to be of high quality.

Vitamin D supplementation for women during pregnancy

Authors: De-Regil L, Palacios C, Lombardo LK, Peña-Rosas J

Vitamin D is produced by the human body from exposure to sunlight and can also be consumed from foods such as fish-liver oils, fatty fish, mushrooms, egg yolks, and liver. Vitamin D has many functions in the body; it helps maintain bone integrity and calcium homeostasis.

During pregnancy, vitamin D deficiency or insufficiency may develop. Vitamin D supplementation during pregnancy has been suggested to safely improve pregnancy and infant outcomes. This review included 15 randomised controlled trials involving 2833 women. Nine trials compared the effects of vitamin D alone with no supplementation or a placebo and six trials compared the effects of vitamin D and calcium with no supplementation.

The results show that the provision of vitamin D supplements during pregnancy improves the women's vitamin D levels, as measured by 25-hydroxyvitamin D concentrations at term and may reduce the risk of delivering a baby prematurely (less than 37 weeks of gestation), result in a lower risk of high blood pressure in women and reduce the risk of a low birthweight baby (less than 2500 g). However, it appears that when vitamin D and calcium are combined, the risk of preterm birth is increased. Data on adverse effects for the mother were not well reported.

The clinical significance of the increase in women's vitamin D levels is unclear and results should be interpreted with caution, as only a few small trials of low quality assessed these outcomes.

With the available evidence, it is unclear whether vitamin D supplementation should be given as part of routine antenatal care to improve maternal and infant outcomes. While there is some indication that vitamin D supplementation could reduce the risk of high blood pressure and increase length and head circumference at birth, further rigorous randomised trials are required to confirm these effects. Currently, the number of high-quality trials with large sample sizes and outcomes reported is too limited to draw definite conclusions on its usefulness and safety.

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

Kind regards



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