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Screening women for gestational diabetes in pregnancy based on whether they are considered at risk, and in different settings

Authors: Tieu J, McPhee AJ, Crowther CA, Middleton P, Shepherd E

What is the issue?

What are the effects of screening all women for gestational diabetes mellitus (GDM), compared with only screening those who are 'at risk'? What are the effects of screening women for GDM in different settings (such as in the community versus the hospital)? This review updates a Cochrane Review, first published in 2010, and subsequently updated in 2014.

Why is this important?

GDM is a form of diabetes that can develop during pregnancy, and can increase the risk of complications for mothers and their babies. Women with GDM are more likely to develop pre-eclampsia (high blood pressure and protein in the urine) and require a caesarean section. For babies, potential problems include being large for gestational age (growing larger than they normally would), or having hypoglycaemia (low blood sugar) after birth. Although GDM usually resolves following birth, mothers and their babies are at risk of developing type 2 diabetes in the future.

Treating GDM can improve health outcomes. Women often do not know they have GDM. Screening to identify and treat GDM in pregnant women may therefore improve outcomes. The two main approaches are 'universal'

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where all women undergo screening; and 'selective' or 'risk factor'-based where only those women 'at risk' are screened. The risk factors for GDM include certain ethnicities, being older, overweight or obese, having had a previous large baby, or a family history of GDM or type 2 diabetes. It possible to screen for GDM in different settings, such as in the community (e.g. a general practice clinic) or in hospital. The ideal screening method for GDM that leads to the best health outcomes for mothers and their babies remains unclear.

What evidence did we find?

We searched for evidence (January 2017) and included two trials involving 4523 women and their babies. Both trials were conducted in Ireland and were at a moderate to high risk of bias. We could not combine the data from these trials because they looked at different interventions and comparisons. One compared ‘universal’ screening with ‘risk factor’-based screening for GDM. The other compared screening women at their general practitioners' clinic (primary care) versus at the hospital (secondary care).

In one trial (with information available for 3152 women), more women were diagnosed with GDM in the group of women who received ‘universal’ screening, compared with the group of women with ‘risk factor’-based screening (low-quality evidence). The trial did not report on outcomes relating to the mothers, including high blood pressure disorders of pregnancy, caesarean birth, perineal trauma, weight gain in pregnancy, postnatal depression, and type 2 diabetes. The trial did not report outcomes relating to the babies including being born large-for-gestational age, death (before or shortly after birth), death or a serious complication, hypoglycaemia, or adiposity, type 2 diabetes, and disability in childhood or adulthood.

In the second trial (with information available for 690 women), screening at the general practitioner's clinic versus the hospital did not make a clear difference to the number of women diagnosed with GDM (low-quality evidence), high blood pressure (*l*ow-quality evidence), pre-eclampsia (low-quality evidence), or the number who had a caesarean birth (*l*ow-quality evidence). This trial did not report perineal trauma, weight gain in pregnancy, postnatal depression, or type 2 diabetes. Screening at the general practitioner's clinic versus at the hospital did not make a clear difference to the number of babies born large-for-gestational age (*l*ow-quality evidence), death (before or shortly after birth), death or a serious complication (low-quality evidence), or hypoglycaemia (very low-quality evidence). Childhood or adulthood adiposity, type 2 diabetes, and disability were not reported in the trial.

What does this mean?

There is not enough evidence to guide us on effects of screening for GDM based on different risk profiles or settings on outcomes for women and their babies. Further large, well-designed, randomised controlled trials are required to assess important short- and long-term outcomes for mothers and their babies.

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Is antibiotic prophylaxis effective or safe for women undergoing operative vaginal delivery?

Authors: Liabsuetrakul T, Choobun T, Peeyananjarassri K, Islam Q

What is the issue?

We wanted to assess whether giving antibiotics to all women undergoing operative vaginal deliveries (using vacuum suction or forceps) prevents infections in the mother without increasing other adverse outcomes in the mother and baby.

Why is this important?

Women who undergo vacuum or forceps assisted vaginal births may be more likely to have an infection after the birth or be re-admitted to hospital after the birth when compared to women who experience a normal spontaneous vaginal birth. The main reasons for an operative vaginal delivery are a prolonged second stage of labour, suspicion of problems with the baby and a desire to shorten the second stage of labour for maternal benefit.

Prophylactic antibiotics may be used to prevent or reduce the risk of these infections. However, there are still some doubts about the benefit of prophylactic antibiotics in reducing postpartum infection after operative vaginal delivery.

What evidence did we find?

We searched for evidence in July 2017 and identified only one study published in 1989. The study included 393 women undergoing either vacuum or forceps delivery comparing those receiving the antibiotic cefotetan with those women who received no treatment. There were no differences between the two groups of women in terms of age, previous pregnancies and other important characteristics. The only two outcomes reported in the trial were infection of the uterus (endometritis) and length of hospital stay. The trial reported that seven women had an infection of the uterus (endometritis) in the group that did not receive any antibiotics. No woman in the antibiotic group was reported to have an infection. Giving antibiotics had no effect on length of hospital stay for the mother for either group. The quality of the evidence for these two outcomes was assessed as being low: the evidence comes from a single trial, which included a very small number of women and reported on only two outcomes.

What does this mean?

Evidence from this single trial suggests that antibiotic prophylaxis may lead to little or no difference in endometritis or maternal length of stay. There were no data on any other outcomes to evaluate the impact of antibiotics for preventing infection after operative vaginal delivery. Future research on antibiotic prophylaxis for operative vaginal delivery is needed to provide evidence on whether it is a useful intervention.

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Interventions during pregnancy and childbirth for preventing cerebral palsy: an overview of Cochrane reviews

Authors: Shepherd E, Salam RA, Middleton P, Makrides M, McIntyre S, Badawi N, Crowther CA

What is the issue?

Cerebral palsy is a term that includes a group of conditions affecting people's ability to move, and is the most common physical disability in childhood. Cerebral palsy is usually due to events before, during, or after childbirth that lead to injury in babies' developing brains. There is no single cause of cerebral palsy. For many children, the cause of cerebral palsy is unclear, however, there are many known risk factors. The biggest risk factor is birth before 37 weeks of pregnancy (preterm birth). Other risk factors for mothers include some medical conditions (including thyroid problems), abnormalities of the placenta, pre-eclampsia (high blood pressure and protein in the urine), and some bacterial and viral infections. For babies, risk factors include congenital and genetic abnormalities, having a low birthweight or growth restricted as a fetus, being a twin or triplet, some infections, and prolonged loss of oxygen during birth.

Why is this important?

As there are different risk factors and causes for cerebral palsy, it is likely that various different interventions (treatments) may be needed to prevent cerebral palsy by reducing risk factors. This overview summarises the evidence about preventing cerebral palsy from Cochrane reviews of interventions during pregnancy and childbirth.

What evidence did we find?

We searched for evidence on 7 August 2016. We identified 15 Cochrane reviews that assessed interventions during pregnancy or childbirth that reported on cerebral palsy, with information from 27 randomised controlled trials involving 32,490 children. The reviews were all high quality, but the quality of the evidence about cerebral palsy ranged from very low to high.

The interventions assessed were for treating mild to moderate hypertension (two reviews), treating pre-eclampsia (two reviews), diagnosing or preventing fetal compromise (when the unborn baby may not be well) during labour (one review), preventing preterm birth (four reviews), maturing or protecting babies' lungs or brains before preterm birth (five reviews), and managing fetal compromise of preterm babies (one review).

We found high-quality evidence that one intervention was effective for cerebral palsy prevention: preterm children born to mothers who received magnesium sulphate before birth were less likely to develop cerebral palsy than children whose mothers received a placebo (five trials, 6145 children).

We found moderate-quality evidence that two interventions were probably ineffective, and could cause harm: (i) children born to mothers who had received antibiotics for preterm labour when their waters had not broken

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were more likely to develop cerebral palsy than children whose mothers did not receive antibiotics (one trial, 3173 children); and (ii) preterm children who were born immediately when there was suspected fetal compromise were more likely to develop cerebral palsy than those for whom birth was postponed (one trial, 507 children).

We found moderate-quality evidence that there was no clear difference in the chance of children to develop cerebral palsy whether their mothers received one or more courses of corticosteroids before preterm birth (four trials, 3800 children).

There was low-quality evidence as to whether the other interventions prevented, increased, or had no impact on cerebral palsy, although we did find that children born to mothers who received corticosteroids to help mature their lungs before preterm birth were potentially less likely to develop cerebral palsy than those born to mothers who received a placebo (five trials, 904 children).

What does this mean?

We identified one intervention that was effective in preventing cerebral palsy (magnesium sulphate before preterm birth), two that appeared to cause harm (preventive antibiotics for women in preterm labour when their waters have not broken, and immediate birth for preterm babies with suspected compromise), and one that did not appear to make a clear difference (more than one course of corticosteroids before preterm birth). For the other interventions assessed, there was not enough evidence to reach any conclusions. Further good quality randomised controlled trials, assessing interventions that might impact cerebral palsy risk factors, with long-term follow-up to measure cerebral palsy, are needed. We identified over 60 other Cochrane reviews that may provide more information in the future.

Preconception care for women with diabetes to improve maternal and infant health

Authors: Tieu J, Middleton P, Crowther CA, Shepherd E

What is the issue?

The aim of this Cochrane review was to find out if giving women with diabetes specialised care before they become pregnant has an impact on their health, and on the health of their future babies. We collected and analysed all relevant studies to answer this question (date of search: January 2017).

Why is this important?

If a woman has type 1 or type 2 diabetes, and she becomes pregnant, she is at a greater risk of high blood pressure, and her baby has a greater risk of being born early (preterm - before 37 weeks). In addition, her pregnancy makes it more likely she will develop one or more of the known complications of diabetes, such as heart disease, problems with the nervous system and eyesight problems. Babies born to mothers with type 1 or

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type 2 diabetes may be larger, and they have a higher risk of death and abnormality of the spinal column or brain. They are also at risk of developing type 2 diabetes in the long term.

Effective control of blood sugar level (glycaemic control) is part of diabetes care. The relationship between glycaemic control and better health outcomes for mothers and their babies indicates that specialist care before pregnancy (preconception care) could be of benefit. This involves education and support, and help with self-monitoring of blood sugar levels, and self-care.

We searched for studies which looked at preconception care in diabetes clinics.

What evidence did we find?

We found three randomised controlled trials, conducted at diabetes clinics in the USA. The total number of participants in the studies was 254. The participants were all adolescent girls involved in the programme READY-Girls (Reproductive-health Education and Awareness of Diabetes in Youth for Girls). Their care was compared with standard care.

None of these three trials gave us the information on the health outcomes we needed. In one trial, there were no pregnancies among the participants during the period of the study, and the other two trials' reporting of pregnancy was not sufficient. There were no data about short and long term outcomes for the mothers and their babies, or about the use of the health service and related costs.

What does this mean?

Because the information is lacking, we have no evidence from this Cochrane review to guide practice on this topic. Further large, well-designed, randomised controlled trials are required. Three trials are ongoing and will be considered in the next update of this review.

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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