INDEPENDENT DIABETES TRUST

Gestational Diabetes

A charity supporting and listening to people who live with diabetes

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Contents

- The Trust offers support, understanding and information to people with diabetes and to those who care for them.
- We listen to the needs of people who live with diabetes and do our utmost to offer help and support.
- We raise awareness of important issues for people living with diabetes and lobby governments on issues that affect people's lives.
- We fund research into ways of improving the lives of people with diabetes.

Gestational diabetes

Gestational diabetes is the type of diabetes that occurs during pregnancy but usually disappears after the baby is born. It can occur at any stage during pregnancy but is more common in the second and third trimesters. It happens when your body cannot produce enough insulin, a hormone that helps control blood sugar levels to meet the extra needs in pregnancy. Like other forms of diabetes, **gestational diabetes affects the way the body uses the glucose** (sugar) in the blood and as a result the blood sugars rise too high. The glucose in the blood is the body's main source of energy.

If gestational diabetes is untreated or uncontrolled, it can result in a variety of health problems for both mother and baby. So it is important that a treatment plan is worked out to keep blood sugars within the normal range. The good news is that controlling blood sugars can help to ensure a healthy pregnancy and a healthy baby.

In the UK, about 4 to 5% of all pregnant women develop gestational diabetes and globally it affects 13% of pregnancies.

Signs and symptoms

Most women do not have any signs or symptoms of gestational diabetes but your healthcare professional may want to check for gestational diabetes as part of your pre-natal care.

When signs and symptoms do occur they may be due to hyperglycaemia such as:

- excessive thirst
- increased urination
- a dry mouth
- tiredness

- blurred eyesight
- genital itching or thrush.

Some of these symptoms are common during pregnancy and are not necessarily a sign of gestational diabetes. Speak to your midwife or doctor if you're worried about any symptoms you're experiencing.

Key factors contributing to the prevalence:

- Increasing rates of obesity - a major contributing factor to the rise in gestational diabetes cases
- Sedentary lifestyles - a less active lifestyle also plays a role in its increasing prevalence
- Unhealthy diets - poor dietary choices contribute to the higher risk.

Impact of diagnosis:

- Early detection and treatment are key to a healthy pregnancy and baby, as gestational diabetes can cause serious problems for both mother and child if left unmanaged.
- Many women see their blood sugar levels return to normal after giving birth, but there is a heightened risk of developing Type 2 diabetes later in life.

The causes of gestational diabetes

Normal metabolism

Normally during digestion the body breaks down the carbohydrates you eat into simple sugars (glucose) and this glucose is absorbed into the blood and transported around the body by the blood vessel system to provide the energy needed for all our activities. However, this process cannot take place without insulin.

Insulin is produced in the pancreas, a gland behind the stomach, and it helps the glucose to pass into the cells to provide energy and at the same time, maintain normal levels of glucose in the blood.

The liver also plays a part in maintaining normal blood glucose levels. When there is more glucose in the cells than your body needs for energy, your body removes it from the blood and stores it in the liver as glycogen. It can then be used when necessary, such as at times when you run low on glucose eg if you have missed a meal. In this situation the liver releases glucose into the bloodstream.

The amount of glucose in the blood varies according to several factors – the food eaten, exercise, stress and infections. The relationship between insulin, glucose and the liver makes sure that the blood glucose levels stay within normal limits. This should be 4 to 7mmols/l.

During pregnancy, the placenta, which supplies your baby with nutrients, produces hormones that prevent the insulin from working properly. These hormones include oestrogen, cortisol and human placental lactogen. They are vital for a healthy pregnancy but they also make the cells in your body more resistant to insulin.

As the placenta grows larger in the second and third trimesters, it produces even more of these hormones so further increasing insulin resistance. Normally the pancreas will respond by producing enough extra insulin to overcome this resistance but sometimes three times as much insulin as normal may be necessary and the pancreas can't produce enough. When this happens, the glucose in the blood cannot be transported into the cells and too much remains in the blood so raising the blood glucose levels above normal and this is gestational diabetes.

Who is at risk of developing gestational diabetes?

Many women who develop gestational diabetes have no known risk factors and any woman can develop it although some are at greater risk than others. The risks increase with:

Age – women older than 25 are more likely to develop it.

Family history - if a close family member, such as a parent or sibling, has Type 2 diabetes.

Personal history – if you've had gestational diabetes with a previous pregnancy or if you have had an unexplained still birth or a baby weighing more than 4.5kg (10 pounds), you may be screened more closely for gestational diabetes with the future pregnancies.

Weight – being overweight before the pregnancy makes gestational diabetes more likely but gaining weight during the pregnancy does not cause it, if you have had a gastric bypass or other weight-loss surgery.

Race – women from certain ethnic groups, south Asian, Black, African-Caribbean or Middle Eastern origin are more prone to gestational diabetes, even if you were born in the UK.

If any of these apply to you, you should be offered screening

for gestational diabetes during your pregnancy. However, if you do not have any of the risk factors above, you are unlikely to be offered this test on the NHS.

Diagnosis and screening

Screening for gestational diabetes is usually a routine part of prenatal care for mothers with risk factors.

Screening usually takes place between 24 and 28 weeks of the pregnancy because the condition can't be detected until then. If your doctor thinks that you are at particular risk, it may be done earlier, for example at 16 weeks.

What is the test?

There are two possible options:

1. The oral glucose tolerance test

In this test, you will be asked to drink a glucose solution that tastes very sweet and then wait for an hour after which a blood sample is taken from a vein in your arm. This will measure the level of sugar (glucose) in your blood and will tell how efficiently your body deals with sugar.

A blood sugar level of below 7.5mmols/l is usually considered normal in this test. Having a blood sugar level above this does not necessarily mean that you have gestational diabetes but it does mean that you will need a further test. For the next test you will be asked to fast overnight, then you will be given another sweet drink that has a higher concentration of glucose. This time your blood sugar levels will be monitored every hour for 3 hours and if at least two of the results are abnormally high, this confirms the diagnosis of gestational diabetes.

2. The HbA1c test

HbA1c, also known as glycated haemoglobin, is a vital indicator

to understand your average blood sugar level over the past two to three months. Regular finger blood sugar tests show a single point in time, but the HbA1c provides a broader picture of glucose control. This is particularly relevant as red blood cells have a lifespan of approximately four months providing information about long-term blood sugar control. The HbA1c test specifically measures the amount of glycated haemoglobin in the blood. A result below 6% (42mmol/mol) is considered normal, while levels above 6% may indicate diabetes.

The HbA1c test offers insight into long-term blood sugar control which is valuable for assessing diabetes risk and supporting proactive health management. In view of the risk of the development of Type 2 diabetes in women who have had gestational diabetes, it is important that blood sugar levels are regularly checked so that if Type 2 diabetes is diagnosed, it is as early as possible. The importance of this is so that any necessary treatment can take place to keep blood sugars controlled and avoid or delay the onset of diabetic complications.

The HbA1c test is a point of care test which only requires a small finger prick of blood. Depending on the device used, results are available within five minutes. It gives you your average blood glucose over the previous 60-90 days. This option is sometimes preferred by expectant women as it does not involve a very sugary drink or fasting and results can be provided much more quickly. This test can also be used 60-90 days after the baby is born and annually thereafter to check that the mother has not gone on to develop Type 2 diabetes.

During pregnancy routine urine tests are carried out but these are not sufficiently reliable to diagnose gestational diabetes because the amount of sugar in the urine can vary throughout the day as a result of the food eaten.

Treatment

Controlling your blood sugar is essential to having a healthy baby and avoiding complications during the delivery. Most women are able to do this with lifestyle changes – diet and exercise, but some may need medication as well. In both cases measuring blood sugar levels is essential because it tells you whether your blood sugars are within the normal range.

Monitoring your blood sugar levels

This might sound difficult at first but once you have learnt how to do it, it will become routine. You draw a drop of blood from your finger with a special device and place it on a test strip which is then put into a blood glucose monitor that provides a reading of your blood sugar level at that time.

Blood sugar levels fluctuate throughout the day according to what you have eaten and how much exercise you have taken, so your doctor may suggest that you carry out blood sugar tests several times a day to ensure that they stay within healthy limits.

Note: Your doctor will measure your blood sugars during labour – if they rise too high, your baby's will also rise and this will cause the baby to produce insulin which may lead to low blood sugars (hypoglycaemia) after the birth.

Diet

A healthy diet is important for all pregnant women but for those with gestational diabetes, diet is part of the treatment – eating the right kind of food in the correct amounts is one of the best ways to control blood sugar

levels. Generally you should eat more fruit, vegetables and whole grains that are high in nutrition but low in fats and calories but fewer animal products and sweets. However, no one diet is suitable for everyone and you should discuss the diet that is suitable for you with a dietitian or your healthcare team.

Note: A study published in Diabetes Research and Clinical Practice found that consuming five or more artificially sweetened beverages per week during pregnancy increased the risk of gestational diabetes by 88% compared with rare or no consumption. This data was collected on 3,653 women and also found each additional sweetened beverage per week increased the risk for gestational diabetes by 5%.

Exercise

Exercise during pregnancy may reduce the risk of gestational diabetes. Research has shown that women who exercise during pregnancy are less likely to have gestational diabetes and this also helps to reduce maternal weight gain.

It is important to keep physically active during pregnancy - moderate exercise will not harm the woman or her baby. Recreational exercise such as swimming or brisk walking is known to be beneficial and has the potential to reduce the risk of gestational diabetes.

The exercise pregnant women take should reflect their previous exercise regime. For example, it would not be appropriate for a

woman who has done no exercise for many years to suddenly start running long distances in pregnancy. If women exercised regularly before pregnancy, they should be able to continue with no adverse effects.

If women have not exercised routinely they should begin with no more than 15 minutes of continuous exercise, three times per week, increasing gradually to daily 30-minute sessions. If there are any questions, then it is advisable to talk to the midwife or GP.

Physical exercise generally lowers blood sugar levels for two reasons:

- it causes glucose (sugar) to be transported to the cells where it is needed for energy and so the blood sugar levels drop
- it also reduces blood sugar levels by increasing the body's sensitivity to insulin – so your body needs less insulin to transport glucose to your cells.

Exercise is important for all pregnant women:

- it helps to prevent some of the discomforts during pregnancy – back pain, muscle cramps, constipation and sleep difficulties
- it prepares you for labour by increasing muscle strength and the endurance developed by regular exercise, reduces the stress on your ligaments and joints during delivery.

Type of exercise suitable for women with gestational diabetes

This should be discussed with your doctor or healthcare professional and then you can decide which activities you enjoy. Safe aerobic activities are a good way to lower blood sugars eg walking, cycling and swimming but ordinary activities such as gardening and housework can also have a similar effect. If you haven't been active for some time, then you should build

up your exercise levels gradually until you are carrying out moderate aerobic exercise on most days.

Stretching and strength training exercises combined with aerobic exercise at the same time every day is the best combination. Varying your exercise routine and working out with other pregnant women can help you stay motivated.

Medications

Sometimes exercise and diet are not sufficient to lower your blood sugar, so medication may be necessary. For some time, insulin was the only option for women with gestational diabetes because it does not cross over to the baby through the placenta but the oral drug metformin (glyburide) is now also used.

Monitoring your baby

Ultrasound

When you have gestational diabetes your baby's growth will be closely monitored by ultrasound. Ultrasound uses high-frequency sound waves and computer processing to give pictures of your baby inside the uterus. Ultrasound is less accurate as your baby gets bigger.

Non-stress test or biophysical profile

If you are taking medications for your gestational diabetes your doctor may suggest a non-stress test (NST) or biophysical profile to make sure that your baby is getting enough oxygen and nourishment, especially nearer to the due date. This is a non-invasive, simple test that takes about 30 minutes and can be done at home. It will not cause your baby any stress and simply checks how often your baby moves and how much the baby's heart rate increases with this movement.

Length of pregnancy

In most cases doctors try to prevent your pregnancy from going longer than 40 weeks because this may increase the risk of complications. Most women with gestational diabetes deliver healthy babies but labour is not routine and delivery by Caesarean section can sometimes be necessary. Gestational diabetes does not affect your ability to breast feed or look after your new baby.

Complications

If you have gestational diabetes, it is understandable that you may worry about the health of your baby and the possibility that it may cause birth defects. However, this is not usually the case because in general birth defects develop during the first 3 months of pregnancy and gestational diabetes does not develop until the second or third trimester so blood sugar levels are normal during the early, critical months. Most women go on to deliver healthy babies but untreated or uncontrolled blood sugar levels can cause problems for you and your baby.

Complications that may affect your baby

Consistently keeping your blood sugar levels within the normal range can reduce these possible complications.

- Macrosomia is when the baby grows too large because extra glucose crosses the placenta into the baby's blood. The baby's pancreas then makes extra insulin to cope with this and the baby grows too large (macrosomia). Very large babies may have difficulty during delivery and are more likely to sustain birth injuries or be born by Caesarean section.
- Hypoglycaemia (low blood sugar levels) occurs in some babies immediately after birth. This is because the babies are accustomed to receiving large amounts of blood sugar

from their mothers and their own insulin production is high. Babies with hypoglycaemia have their blood sugar levels checked regularly after birth and are given glucose through an intravenous drip to prevent the blood sugars dropping too low.

- **Respiratory distress syndrome** is a condition that makes breathing difficult. It is more likely to occur in premature babies. It is caused by a lack of certain substances in the lungs that help prevent the lungs from collapsing when the baby takes a breath. Some babies may need help with their breathing until their lungs become stronger.
- **Jaundice** is a yellowish colouring of the skin and the whites of the eyes. It occurs because the baby's liver is not sufficiently mature. New-born jaundice may begin within 2 or 3 days after birth but sometimes it does not appear for a week. New-born jaundice is not a disease in itself and is not serious but will be monitored by the doctor.
- **Shoulder dystocia** can occur if the baby is very large and the shoulders are too big to move through the birth canal. In most cases doctors can free the baby but injuries may occur. This is a rare but serious complication of gestational diabetes.
- **Stillbirth or death** is a rare occurrence but if it occurs, it is usually because gestational diabetes is undetected and therefore untreated.

Complications that may affect you

If you have gestational diabetes, then you may be at risk of the following complications:

- **Pre- eclampsia** is characterised by significant increase in blood pressure and left untreated, it can lead to serious

complications for mother and baby. Having gestational diabetes increases the risk of pre-eclampsia.

- Caesarean section may be recommended if your baby is large (macrosomia) but gestational diabetes itself does not mean that a Caesarean section has to be planned.
- Type 2 diabetes is more likely to develop in later life in women who have had gestational diabetes. In many cases this can be prevented with a healthy lifestyle - a healthy diet and regular exercise. Up to 40% of women develop Type 2 diabetes within 5 to 10 years after delivery but the risk may be increased in obese women.

Living with gestational diabetes

It is not easy living with a condition that can affect the health of your unborn baby and you may find it stressful, especially as you have to carry our regular blood sugar monitoring, follow a healthy diet and take regular exercise.

Prolonged stress itself can raise blood sugar levels so it is important to learn as much as you can about your condition – books from the library, talking to other women with the same condition and of course, talking to your doctor, dietitian, midwife and a diabetes specialist nurse. They can answer your questions and help you to learn how to manage your blood sugar levels during pregnancy.

After your baby is born

You can breast feed and look after your baby. After the birth your blood sugar levels will be checked frequently and then again in 6 weeks. Gestational diabetes usually clears up after the baby is born because when the placenta is removed, the hormones it was producing which caused your insulin resistance are also removed.

Once you have had gestational diabetes it is sensible to have your blood glucose levels tested at least once a year and also to maintain a healthy lifestyle to lessen your chances of developing Type 2 diabetes later in life.

33% of women who have gestational diabetes will develop Type 2 diabetes within 15 years

This research, published in 2021, is the largest and most comprehensive systematic review of all the available data from studies published up to October 2019. It provides the best available estimate of the risk of Type 2 diabetes after having gestational diabetes and explores reasons for the variation in risk.

A third of women who get gestational diabetes will go on to develop Type 2 diabetes within 15 years of their pregnancy. These figures show that the risk of developing Type 2 diabetes after a pregnancy with gestational diabetes is much more variable than previously thought and persists into later life.

The lead author also suggests that the new figures should be used by clinicians and healthcare planners to inform care for women who have experienced gestational diabetes. These figures indicate that there is a strong case for testing for diabetes, not only straight after the pregnancy but regularly thereafter, for the long term. Patients themselves should be made aware of the risk so that they can take up testing opportunities and seek support, if needed, to make healthy lifestyle changes.

The findings from this review show that the number of women diagnosed with Type 2 diabetes increases each year after pregnancy with gestational diabetes.

(Published in Diabetes Research and Clinical Practice, 1 December 2020: The absolute and relative risk of Type 2 diabetes after gestational diabetes: A systematic review and meta-analysis of 129 studies)

Obesity later in life

Some research has suggested that babies of mothers who had gestational diabetes may be more likely to develop diabetes or become obese later in life. If you have a history of gestational diabetes, or currently have it, the NHS Diabetes Prevention Programme can support you. If you self-refer to the programme, you can get help with diet, exercise and maintaining your weight.

Research shows the Healthier You NHS Diabetes Prevention Programme has reduced new diagnoses of Type 2 diabetes in England, saving thousands of people from the potentially serious consequences of the condition. It cuts the risk of developing Type 2 diabetes by more than a third for people completing the programme.

The Healthier You: NHS Diabetes Prevention Programme (DPP), is a behaviour change programme that supports people identified as being at risk of developing Type 2 diabetes. Over nine months, participants receive personalised support with practical tools and advice on healthy eating and lifestyle, increasing physical activity and weight management, all of which have been proven to reduce the risk of developing Type 2 diabetes. It is free of charge for eligible people to access.

Recommended websites for further information

https://www.nhs.uk/conditions/gestational-diabetes/

https://www.england.nhs.uk/diabetes/diabetes-prevention/healthier-you-nhs-diabetes-prevention-programme-gdm/

Notes

Scan the QR code
to visit our website

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