

## **Medication options for GDM (patient handout)**

The most important part of treating GDM is to eat the right amount of healthy food and be active. The diabetes team will discuss with you the best way of doing this. It is also important to see how treatment is affecting your blood sugar levels, so keep testing each morning before you eat and after each meal. Again, the diabetes team will explain what glucose levels they want you to aim for and the timing of your tests. If your sugar tests remain elevated, this tells us that too much sugar is going to your baby. Like anyone who is fed too many sweet foods, the baby may become unhealthy and it may also become fat. So, what can we do to try to prevent this and keep your pregnancy as normal as possible?

Firstly, it is very important that you DO NOT starve yourself to try and reduce your sugar levels further. The baby needs a balanced diet and if you restrict your carbohydrates (the name for sugars that are all bound together in foods such as bread, rice and pasta) too much, your body will not function normally. Ketones build up in the blood and this may not be good for the baby.

So, what do we recommend?

### **One option is to take insulin**

Your sugar level is elevated because the insulin your own body makes is not working efficiently and your body cannot make enough extra insulin to keep your sugar level down. However, if you take extra insulin by a simple injection just under the skin, the sugar level will come down. Some women only need background insulin that works overnight to bring the sugar level down in the morning. Some women need mealtime insulin to stop the sugar level increasing too much after a meal. Many women need both types of insulin and may require 4 injections a day. Most women are anxious about the idea of insulin, but they are surprised how easy it is to give and the injection is much less sore than the finger-prick tests.

Insulin goes into your body to reduce the sugar level, but does not cross to the baby. If the dose of insulin is right for you (and everyone needs a different amount) the sugar level in your blood will improve and this means that a more healthy amount is going to the baby.

It is important that insulin is balanced with your food and activity. If the balance is not correct the sugar in your blood will remain too high, or drop low. If it drops low, your body will have symptoms of "hypoglycaemia". The diabetes team will teach you how to recognise and treat this.

If you need insulin, we stop the treatment when you are in labour or when you stop eating prior to a caesarean section. Your body does not become dependent on insulin.

### **Another option is to take metformin**

Metformin is a tablet that has been used for 40 years to treat diabetes outside pregnancy. It works by helping your own insulin do its job better – so that you are able to keep the sugar level down more easily. One advantage of metformin compared with insulin is that metformin does not make the sugar drop too low (does not cause hypoglycaemia). Some diabetes clinics have used metformin during

pregnancy and reported safe outcomes but, until recently, it had never been compared with insulin treatment. This is particularly important as metformin crosses the placenta to the baby.

Between 2002 and 2006 a large trial was undertaken in New Zealand and Australia comparing metformin with insulin in women with GDM. The main outcomes related to the health of the baby at birth and after birth. The outcomes were almost identical in both treatment arms. There were minor differences; in women who were treated with metformin, fewer babies had very low blood sugar levels after birth and slightly more women went into labour before 37 weeks. Other pregnancy outcomes were no different between the treatments. The children are being followed up and at 2 years of age there are no differences in the body composition between the treatment groups, which means they have the same amount of fat and muscle and bone. Some of the measurements suggest that children whose mothers took metformin might store their fat in a slightly healthier way, but we will not know if this is true until we follow the children again, which is planned. We have also examined the outcomes of using metformin routinely at national Women's between 2006 and 2009, and we report good outcomes in pregnancies where the mother had taken metformin.

Metformin is not as strong as insulin, so, in the trial, over 40% of women treated with metformin required some insulin as well. These women were able to take a lower dose of insulin than women treated with insulin alone. In women who took metformin, alone or with insulin, their weight gain was less than women who took insulin alone.

Metformin is not an option for everyone and you would need to check with your doctor whether it would be a good choice for you. There are certain medical conditions or pregnancy complications that mean insulin would be a better choice. Also, some women (two out of every ten) experience side-effects, typically diarrhoea, when they first start metformin. This usually settles within a few days of starting treatment. We try to reduce this problem by starting with a low dose and increasing it (up to a dose of 2,500mg/day) until the sugar levels are in range. This usually takes 1-2 weeks. Metformin should be taken with food in the stomach so we recommend it is taken during or immediately after eating.

A number of diabetes teams are experienced with using metformin in pregnancy now and can often tell you whether you are likely to need insulin as well as metformin. If you decide to take metformin, your doctor may recommend that you also start some insulin; in this situation, you may only need 1 or 2 injections instead of 4 injections a day.

It is important to achieve a healthy level of sugar in your blood for your baby. If you are unable to do this with a healthy diet and staying active, insulin or metformin (or both) can help you reach your target. Talk with your diabetes team to help you make the best decision for you and your baby.