

## **Use of Metformin for PCOS**

Polycystic ovarian syndrome (PCOS) is closely related to a problem with insulin. Insulin is a hormone released from the pancreas after a meal and it allows the organs of the body to take up energy in the form of glucose. In PCOS, there is a 'resistance' of cells in the body to insulin, so the pancreas makes more insulin to try and compensate. The excessively high levels of insulin have an effect on the ovary, causing a rise in androgen (testosterone) levels and preventing ovulation. This may also make weight loss more difficult. Reducing insulin levels by weight loss, exercise or use of drugs (such as Metformin) results in a lowering of testosterone and an improvement of the symptoms. Metformin is a drug that has been used in the treatment of diabetes for over 30 years. It acts by making the body more sensitive to insulin so does not stimulate production of insulin.

Metformin is not licensed for treating PCOS however it is used 'off-label' to help improve insulin resistance in women with PCOS. In women with PCOS, Metformin may help correct hormone imbalances, lead to regular periods and improved fertility. It may also help improve the symptoms of unwanted facial hair, scalp hair thinning/loss and acne. It does not cause low blood sugar levels when used for women as it does not stimulate insulin production.

## **What are the side effects of Metformin?**

1 in 6 women will experience some side effects: nausea, vomiting, abdominal pain and diarrhoea are the commonest. Women may also experience a metallic taste in their mouth. To minimise side effects, it should be taken with your meal either in the middle of a meal or straight after a meal. Side effects usually settle within 3-4 weeks.

Women with kidney failure or severe liver disease should not take Metformin as they are at increased risk of a very rare side effect called lactic acidosis.

## **How should Metformin be taken?**

Metformin is taken by mouth as follows:

- Weeks 1&2: 500mg once daily, with food (breakfast or evening meal)
- Weeks 3&4: 500mg twice daily, with food (breakfast and evening meal)

- Week 5 onwards: 500mg three times daily, with food (breakfast, lunch and evening meal).

On a higher dose of Metformin, side effects are more common and if you get them and they persist, you should contact your clinic to discuss the options to deal with this.

There is no particular time limit for the use of Metformin. However, if you haven't seen any benefits after six months of use, we may discuss discontinuing the drug.

### **What should I avoid while taking Metformin?**

Metformin is generally safe, but can be dangerous if you drink more than 4 units of alcohol in a 24hour period. It should be used with caution in those on any high protein, minimal carbohydrate diet. Some herbal remedies may interact with Metformin. We suggest you stop taking them if you are on Metformin.

### **When should I stop taking Metformin?**

You should stop taking Metformin if you:-

- Drink heavily or are planning to drink a lot of alcohol (4 units or more) in the next 24 hours in which case you should avoid taking Metformin 24 hours before and 24 hours after drinking.
- Are dehydrated (as your body has lost a lot of water from diarrhoea or vomiting)
- Are going to have any x-ray procedure which requires an injection of dye into your veins.
- Are scheduled to have surgery or an operation involving a general anaesthetic.
- Develop any allergic reaction which may be due to Metformin.
- At 12 weeks gestation if you become pregnant.

### **Will Metformin help me lose weight if I am overweight?**

If you are overweight Metformin alone will not reduce your weight, unless combined with healthy eating, a weight reducing diet and exercise programme. We recommend three light meals a day, with fruit and plenty of vegetables, as well as exercise for an hour, three times a week.

### **Metformin and safety in pregnancy:**

Metformin is safe in pregnancy and it has been shown that taking it up to 12 weeks of pregnancy may reduce the risk of miscarriages. The consequences of metformin exposure on long-term offspring health remain unclear there is however a suggestion of increased childhood weight. Side-effects of metformin are mostly mild, transient gastrointestinal symptoms and are not worse in pregnancy.