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Fertility Program

PATIENT'S FACT SHEET: **TREATING PCOS WITH METFORMIN** (Glucophage®)

Research has shown that women with Polycystic Ovarian Syndrome (PCOS) have an increased level of testosterone inside the ovary. This increased testosterone level interferes with the ripening of egg follicles and thus with ovulation.

It has been discovered that this increased testosterone is linked to insulin resistance and elevated insulin levels. Also, many women with PCOS have strong family histories of diabetes, and many become diabetic themselves with pregnancy, with increasing age, or weight gain. A drug called metformin (brand name: Glucophage®) helps to decrease elevated testosterone levels, to decrease insulin resistance, and to improve the ability to ovulate.

Metformin has the following potential benefits:
– Enhances the body's ability to use insulin
– Inhibits glucose production from the liver
– Exerts potential favorable effects on blood lipids
– Reduces circulating androgens
– Aids in ability to lose weight
– Can provide an overall improvement in well-being and energy level

A balanced diet with moderate carbohydrates, weight loss, and especially exercise can also reduce insulin levels, and should also be part of the program of a woman with PCOS. You should exercise, at a minimum, by walking 30 minutes (or 2 miles) 5 days a week. Before you start on metformin, you should meet with our dietician and review a good diet plan for you. It will be a moderate carbohydrate diet, usually also with fewer calories to encourage weight loss. Weight loss, even by as little as 10-20 pounds, can also be very helpful.

SIDE EFFECTS

Lactic acidosis
Metformin is a widely used and safe drug. Lactic acidosis is a rare but significant complication, and only occurs in patients with liver or kidney disease. You will have a blood test to prove your liver and kidneys are normal before you start the metformin, and we will repeat the liver and kidney tests every few months for as long as you are taking metformin. The symptoms of lactic acidosis are heavy breathing, slow erratic pulse, weakness, muscle pain, and extreme sleepiness. Excessive alcohol can increase your chance of lactic acidosis when taking metformin. Alcohol should be limited to 1-2 drinks per day while on the medication.

Warning:
If you need surgery or anesthesia, stop the drug 24 hours beforehand. Metformin should also be stopped the day before any planned x-rays using dye. You should also temporarily stop the medication if you have the "flu" or become dehydrated. These are things which might precipitate lactic acidosis.

METFORMIN SIDE EFFECTS, cont.

Gastrointestinal Discomfort
About 30% of those who use metformin suffer from loose stools and more frequent bowel movements. To help minimize these symptoms, we will start you on a low dose of the medication and slowly increase it as the body develops tolerance. Over-the-counter Imodium can help with symptoms of diarrhea.

Vitamin B-12 deficiency
Metformin has been reported to rarely decrease the body's ability to absorb vitamin B-12. This is more of an issue in frank diabetics than it is in patients with PCOS, and usually takes years of metformin use to develop. Because of this, your vitamin B-12 blood level should be checked after being on metformin for a year, and annually if you stay on it longer. If vitamin B-12 deficiency were to occur, it would not be treatable with oral B-12 supplements, because the problem has to do with absorption from the intestinal tract. B-12 injections would be necessary.

Other
You may feel a little "off" the first month on the drug. Some people get low blood sugar or headaches or just fatigue. As your body adjusts and your insulin resistance decreases, you will begin to lose weight and feel better

HOW TO TAKE METFORMIN

Start with one 500 mg pill daily with dinner for a week;
then increase to one pill twice daily (with breakfast and dinner) for a week;
then to 2 with dinner and one with breakfast;
then to 2 at breakfast and 2 at dinner – or two 1000 mg doses per day.

Always take the medication with meals. If you develop diarrhea, you can take some over-the-counter Imodium and wait a day. If it continues and is annoying, cut your dose back by one pill/day. Wait until your body adjusts, then increase the dose again. If at any time during your treatment, you feel you need to stop the drug, or if you cannot tolerate the 1000 mg twice-daily dose, please let us know. There may be some other options.

METFORMIN AND FERTILITY TREATMENT

Some women with PCOS find that they will begin to ovulate on their own once they are stabilized on metformin. However, if you need ovulation-inducing drugs, we will make a plan with you to get them started. Sometimes a month or two on oral contraceptives will suppress your hormones (including some of the excess testosterone), control the cycle and keep the periods organized until the metformin, diet and exercise are established. We can then begin ovulation-inducing drugs with a better expectation of success.

Studies have shown conception rates improve with metformin alone, but that if ovulation does not occur, the combination of metformin and other drugs for ovulation induction can be more effective than either alone to induce ovulation.

If you need gonadotropins to ovulate, preliminary data suggests a better response, with less overstimulation and less risk of multiple pregnancies, when metformin is used in conjunction with this treatment.

METFORMIN AND PREGNANCY

Women with PCOS are known to have a somewhat higher miscarriage rate than other women of similar age. There is some evidence that continuing the metformin during the first 12 weeks of pregnancy may lower that risk, and many fertility centers recommend that their pregnant PCO patients stay on the metformin for at least the first 12 weeks. Many women who have done well on metformin may also want to continue it throughout the pregnancy.

Evidence suggests that metformin is safe in pregnancy, and will lower the rate of gestational diabetes developing. Don't stop your metformin if you conceive. Discuss this with us after your positive pregnancy test.

Also, during pregnancy you will be at increased risk of developing gestational diabetes. Therefore, we will screen for diabetes early in your pregnancy, instead of waiting for the usual 28 week screen recommended for all pregnant women.

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