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Metformin and Pregnancy

This sheet talks about the risks that exposure to metformin can have during pregnancy. With each pregnancy, all women have a 3% to 5% chance of having a baby with a birth defect. This information should not take the place of medical care and advice from your health care provider.

What is metformin?

Metformin is an oral medication used to lower blood sugar (glucose). It has been used for the treatment of type II diabetes (non-insulin dependent diabetes) and insulin resistance, which is common in polycystic ovarian syndrome (PCOS). Other names for this medication include Glucophage®, Diformin® and Glycon®. Metformin can be found in combination with other medications to lower blood sugar.

I use metformin for the treatment of type II diabetes. What should I do during pregnancy?

Metformin has been prescribed to some women with type II diabetes for use during pregnancy. Oral drugs, however, do not control blood sugar levels well enough in some women during pregnancy. When this occurs, insulin is usually the medication of choice. Consult your physician about which medication is appropriate for you.

I use metformin to treat PCOS. Should I stop taking the medication before or after I get pregnant?

Recent studies suggest that women with PCOS who are treated with metformin have a higher chance of getting pregnant. Other studies have suggested that continuing metformin after becoming pregnant may decrease the chance of first-trimester

miscarriage when compared to women with PCOS who did not take metformin. Women with PCOS who are planning a pregnancy or who become pregnant should not discontinue metformin unless directed to do so by a doctor.

Does metformin cause birth defects?

Metformin use during pregnancy has been evaluated in a number of small studies and has not been shown to increase the risk of birth defects. While these studies are reassuring, further studies are needed to confirm that metformin does not cause a small increase in the risk for birth defects.

If I use metformin throughout pregnancy will it affect the baby?

One study reported that treatment of diabetic women with metformin during pregnancy was associated with an increased chance of developing serious pregnancy complications including pre-eclampsia (which includes dangerously high blood pressure) and stillbirth. More studies are needed to determine if there is a cause-and-effect relationship between metformin and these outcomes. This same study did not find an increased risk of other pregnancy complications such as pregnancy-induced high blood pressure, fetal growth retardation, early placenta detachment or C-section.

Some infants have been reported to have jaundice because of exposure to

metformin during pregnancy. In addition, infants exposed at the end of the pregnancy to oral medications that lower blood sugar, such as metformin, may have low blood sugar in the newborn period. Some authors suggest that this complication may be avoided by switching to insulin for the 24 hours prior to a planned delivery. Consult your doctor before making any changes to your medications.

One study reported the outcome of pregnancies after treatment of PCOS with metformin during pregnancy. Infants were found to have normal birth weight and height. In addition, at 6 months of age, the infants had normal weight, height, and social and motor development.

The reason a woman has been prescribed metformin may also pose risks to a pregnancy unrelated to this medication.

The baby's father uses metformin to control diabetes. Will that harm the baby?

There have been no reproductive studies that have looked at the use of metformin in men. Typically, medications that a father takes are not thought to increase the chance of birth defects or other problems related to pregnancy.

Is it OK for me to breast feed while I use metformin?

Metformin is transferred into breast milk, however, it is found in milk at lower concentrations than in the mother's blood. Although the infant may receive small amounts of metformin in the milk, the acids in the baby's stomach break down much of the drug before the infant can absorb it. In two recent studies, none of the breastfed infants had any side effects. The infant's pediatrician should be told of any medications the mother takes during breast-feeding.

*For information on a related topic see the OTIS fact sheet for **Diabetes and Pregnancy** available at www.otispregnancy.org.*

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References:

Briggs GG, et al. 2005. Excretion of metformin into breastmilk and the effect on nursing infants. *Obstet Gynecol* 105(6):1437-41.

Coetzee EJ and Jackson WP. 1980. Pregnancy in established non- insulin-dependent diabetics: A five-and-a-half year study at Groote Schuur Hospital. *S Afr Med J* 58:795-802.

Coetzee EJ and Jackson WP. 1984. Oral hypoglycaemics in the first trimester and fetal outcome. *S Afr Med J* 65:635-7.

Coetzee EJ and Jackson WP. 1986. The management of non-insulin-dependent diabetes during pregnancy. *Diabetes Res Clin Pract* 1:281-7.

De Leo V, et al. 1999. Effects of metformin on gonadotropin-induced ovulation in women with polycystic ovary syndrome. *Fertil Steril* 72:282-5.

Glueck CJ, et al. 2001. Continuing metformin throughout pregnancy in women with polycystic ovary syndrome appears to safely reduce first-trimester spontaneous abortion: a pilot study. *Fertil Steril* 75:46-52.

Glueck CJ, et al. 2002. Pregnancy outcomes among women with polycystic ovary syndrome treated with metformin. *Hum Reprod* 17:2858-2864.

Hale TW, et al. 2002. Transfer of metformin into human milk. *Diabetologia* 45(11):1509-14.

Hellmuth E, Damm P, and Molsted-Pedersen L. 2000. Oral hypoglycaemic agents in 118 diabetic pregnancies. *Diabet Med* 17:507-11.

Langer O, et al. 1999. There is no association between oral hypoglycemic use and fetal anomalies. *Am J Obstet Gynecol* 180:S38 (Abstract).

McCarthy EA, et al. 2004. Metformin in Obstetric and Gynecologic Practice: A Review. *Obstet Gynecol Surv* 59(2):118-27.

Taylor, AE. 2000. Insulin-lowering medications in polycystic ovary syndrome. *Obstet Gynecol Clin North Am* 27:583-595.

Velázquez E, Acosta A, and Mendoza SG. 1997. Menstrual cyclicity after metformin therapy in polycystic ovary syndrome. *Obstet Gynecol* 90:392-395.

*If you have questions about the information on this fact sheet or other exposures during pregnancy, call **OTIS** at **1-866-626-6847**.*