

Diabetes: Genetic Counseling and Pregnancy

*By Virginia W. Norris, MGC, GC.
and Philip Buchanan, PhD, FACMG*

Diabetes may also be associated with many different genetic syndromes, for example, hemochromatosis, cystic fibrosis, muscular dystrophy, and Down syndrome.

Both insulin-dependent diabetes (IDDM) and non-insulin-dependent diabetes (NIDDM) are **multifactorial conditions that mean both genetic and environmental factors influence the presentation of these conditions**. Offspring of affected individuals inherit a susceptibility to these conditions, but may never develop diabetes. Children of individuals with IDDM have approximately a 2.5 percent risk of developing IDDM, while children of individuals with NIDDM have between a 5-10 percent risk of developing diabetes. Poor diet, obesity, and lack of exercise increase the risk of developing diabetes of either type.

Women with IDDM need excellent prenatal care. These women must monitor and control their diabetes before and during pregnancy very carefully. In the general population, about 3-5 percent of live born babies have a serious birth defect and/or mental retardation. Women who have IDDM that is not well controlled during their pregnancies put their health and the health of their baby at increased risk. If a woman does not have her insulin dependant diabetes well controlled during her pregnancy, she may have a 10 percent or higher risk of having a baby with a heart, spine, or other birth defects. If a woman with IDDM maintains tight control over her diabetes during pregnancy, she may only have a risk 2-3 percent higher than average of having a baby with one of these birth defects.

Offspring of women who do not have tight control over their diabetes have an increased risk for many different types of birth defects. The primary birth defect is called caudal regression. Caudal regression is a broad term used to describe birth defects of the lower portion of the body, usually of the legs. Other birth defects include open spine defects (spina bifida), facial clefts (cleft lip and/or cleft palate), and heart defects. Poor diabetic control also increases the risk for increased birth weight and perinatal death.

It is recommended that women who have IDDM discuss their condition and their risks with their physician prior to becoming pregnant. A consult with a genetic counselor may also provide useful information. Having good control over diabetes prior to becoming pregnant is essential. Many birth defects occur prior to eight weeks of pregnancy, a time when many women do not realize they are pregnant. While pregnant, we recommend women with IDDM maintain tight control over their diabetes, seek genetic counseling if not done prior to conception, and consider having a targeted fetal ultrasound and echocardiogram at approximately 18-19 weeks gestation to assess the pregnancy for birth defects. **With proper care before and during pregnancy, most women with IDDM have successful and healthy pregnancies.**

Dr. Philip Buchanan is Director of GeneCare Medical Genetics Center. Virginia Norris is a certified genetic counselor at GeneCare. GeneCare provides genetic counseling, screening, and laboratory services. For more information, contact their website at www.genecare.com , or call (919) 942-0021 or 1-800-277-4363.