New research shows pre-existing diabetes in pregnancy greatly increases the risk of death of the fetus or infant child

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New research shows that pre-existing diabetes in pregnant women greatly increases the risk of death of their unborn fetus by around four-and-a-half times compared with pregnant women without diabetes, and also almost doubles the risk of death of infants after birth. The research, published in *Diabetologia* (the journal of the European Association for the Study of Diabetes), is by Dr Ruth Bell and Peter Tennant, Newcastle University, UK, and colleagues from Newcastle University, and the South Tees NHS Trust, UK and Public Health England.

While previous research has investigated links between pre-existing diabetes in mothers and deaths of unborn fetuses and young children, it has not previously excluded congenital anomalies from causes of death. In this new research, the authors used unique sources of data from several long-standing population-based registers in the north of England to investigate the association between pre-existing diabetes and the risks of fetal and infant death in offspring without congenital anomalies.

All normally formed singleton offspring of women with pre-existing diabetes (1,206 with type 1 diabetes and 342 with type 2 diabetes) in the North of England during 1996-2008 were identified from the Northern Diabetes in Pregnancy Survey. The relative risk of fetal death (i.e. death of a fetus at or after 20 weeks' gestation 2) and infant death (i.e. death during the first year of life) were estimated by comparison with population data from the Northern Perinatal Morbidity and Mortality

Survey. Predictors of fetal and infant death in women with pre-existing diabetes were examined.

The researchers found that women with pre-existing diabetes were 4.56 times more likely to have their unborn fetus die compared with women without diabetes, while their infants were 1.86 times more likely to die. There was no difference in the risk of fetal and/or infant death in women with type 1 diabetes compared with type 2. Women with glycated haemoglobin (a standard measure of blood sugar control) above 6.6%, those with pre-pregnancy retinopathy (a complication of diabetes) and a lack of folic acid supplementation were all found to be at higher risk of experiencing a fetal or infant death.

The prevalence of fetal death was 3% in women with pre-existing diabetes, and the prevalence of infant death was 0.7%, compared with 0.7% and 0.4% in women without the condition. The researchers found no evidence that the increased risk of fetal and infant death associated with pre-existing diabetes had decreased over time, nor that the relative risk of stillbirth varied by gestational age.

The average glycated haemoglobin level in the pregnant women studied was 7.8%. England's National institute for Health and Care Excellence (NICE), has set a target of 6.1% for women, while the American Diabetes Association target is 7%. 'If the women in the study had all achieved either the ADA target or NICE target, the authors estimate the prevalence of fetal death and infant death would have been around 40% lower.

The authors commented: "It's disappointing to see so little improvement because, with the right care, most women with diabetes can - and will - have a healthy baby. Stillbirths and infant deaths are thankfully not common, but they could be even less common if all women with diabetes can be helped to achieve the best possible control of their blood

glucose levels.

"We already know that folic acid reduces the risk of certain congenital anomalies, such as spina bifida or cleft lip, which is why women with diabetes are advised to take high dose supplements of 5 milligrams daily. These are available on prescription and should be taken for at least 3 months before conceiving. Our results suggest this simple action may also help to reduce the risk of stillbirth or infant death even in babies without these conditions."

They add: "If you are planning a pregnancy, and your blood glucose levels are high, then any reduction -even a small one - is likely to be good for your baby. Secondly, seek advice as early as possible from your diabetes team. They can help you keep your glucose at safe levels, as neither high blood glucose nor repeated episodes of severe hypoglycaemia are good for you or your baby."

Provided by Diabetologia