

Ever growing number of women with gestational diabetes suggests future will be filled with children with early diabetes

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New research published in *Diabetologia* (the journal of the European Association for the Study of Diabetes) shows that children exposed to gestational diabetes in the wombs of their mothers are themselves around six times more likely to develop diabetes or prediabetes than children not exposed. The research is by Dr Sonia Caprio, Yale University School of Medicine, New Haven, CT, USA, and colleagues.

With the increase in gestational [diabetes](#) (GDM), there is a growing need to understand the effects of glucose exposure on the newborn in the womb, at birth and later in life. The risk of developing impaired [glucose tolerance](#) (IGT) (prediabetes) in individuals exposed to diabetes in the womb has not, say the authors, been adequately investigated. Thus in this new study, the authors examined the risk in obese youths of developing IGT after exposure to GDM in the womb. The authors say: "We hypothesised that [prenatal exposure](#) to GDM in obese [children](#) with normal glucose tolerance (NGT) would be associated with development of altered glucose metabolism over time, driven by an impairment of beta cell secretion relative to the insulin sensitivity."

255 obese adolescents with a normal glucose tolerance were selected for the study. All of them were investigated for in utero exposure to GDM and underwent an OGTT, which was repeated after approximately 3 years. The authors found that 210 (82%) participants were not exposed to GDM (called the NGDM group), and 45 (18%) were exposed to

GDM (the EGDM group). In the NGDM group, only 9% (n=18) developed either IGT or type 2 diabetes compared with 31% (n=14) of the EGDM group who developed either IGT or type 2 diabetes, with both results statistically significant.. "Exposure to GDM was the most significant predictor of developing IGT or [type 2 diabetes](#), with an increased risk of almost six times for those children exposed to GDM in the womb," say the authors.

At baseline, the EGDM group showed a reduction in beta cell function (the cells that produce insulin), and, at follow-up, they also displayed a reduction in insulin sensitivity compared with the NGDM group.

"Our study demonstrates that obese normal glucose-tolerant children of GDM mothers have pre-existing defects in beta cell function," say the authors. "This is in turn a strong risk factor for these children to develop prediabetes or diabetes."

They add: "The ever growing number of women with [gestational diabetes](#) (18%) suggests that the future will be filled with children with early diabetes at a rate that far exceeds the current prevalence."

They conclude: " Offspring of GDM mothers ought to be screened for IGT and/or impaired fasting glucose (another form of prediabetes), and preventive and therapeutic strategies should be considered before the development of full clinical manifestation of diabetes. While we cannot use this analysis for development of definitive screening guidelines, we strongly suggest that, among [obese children](#) and adolescents exposed to GDM, specifically if additional risk factors are present—such as severe obesity or being of ethnicity minorities at higher risk—oral glucose tolerance tests should be performed at baseline (specifically in mid-pubertal adolescents) and potentially repeated based on clinical judgement. Furthermore, the need for studies aimed at unravelling the role of genetic or epigenetic factors and environmental postnatal factors

that might be causing functional defects in the beta cell has never been more urgent."

Provided by Diabetologia

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