Winter conception increases mum's diabetes risk

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Research led by the University of Adelaide has found that women whose babies are conceived in winter are more likely to develop gestational diabetes during pregnancy, increasing a range of risk factors for both child and mother.

The study – investigating more than 60,000 births in South Australia over a five-year period – is the first population-based study of its kind to confirm a seasonal variation in gestational diabetes.

Published in the journal *BMJ Diabetes Research & Care*, the study was led by the Robinson Research Institute at the University of Adelaide, and involved the University of Groningen in the Netherlands and the Pregnancy Outcome Unit of SA Health.

Gestational diabetes mellitus is a serious pregnancy complication characterised by inadequate blood sugar control in pregnancy. Complications of gestational diabetes include excessive birth weight, pre-term birth, low blood sugar (which, in extreme cases, can lead to seizures in the baby), and developing type 2 diabetes later in life.

"Our study is the first of its kind to find strong evidence of a relationship between gestational diabetes and the season in which a child is conceived," says lead author Dr Petra Verburg from the University of Groningen, who is currently based at the University of Adelaide's Robinson Research Institute and at the Lyell McEwin Hospital.

The study found that:

- In the five years from 2007-2011, the incidence of pregnancies affected by gestational diabetes increased, with 4.9% of pregnancies affected in 2007, increasing to 7.2% in 2011
- Women who conceived in winter were more likely to develop gestational diabetes during their pregnancy, with 6.6% of pregnancies from winter conceptions affected
- Women who conceived in summer were less likely to develop gestational diabetes, with 5.4% of summer conceptions affected.

"The mechanisms that cause gestational diabetes are still not fully understood," Dr Verburg says. "Previous studies have suggested that meteorological factors, physical activity, diet and vitamin D are risk factors for gestational diabetes, all of which are impacted by the winter season.

"Not only should our results be confirmed in other populations, future research should also investigate other factors that vary with season," she says.

Research leader and senior author Professor Claire Roberts, from the University's Robinson Research Institute, says the results continue to show the broader impacts of the increasing body mass index (BMI) in women of reproductive age.

"Elevated BMI and low physical activity are risk factors for gestational diabetes, as well as low socio-economic status. These factors are modifiable, and they represent targets for interventions to prevent the rising tide of gestational diabetes," Professor Roberts says.

More information: Petra E Verburg et al. Seasonality of gestational diabetes mellitus: a South Australian population study, *BMJ Open*

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