

Rates of gestational diabetes in pregnant women peak during summer

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New research presented at this year's European Association for the Study of Diabetes (EASD) meeting in Munich, Germany (12-16 Sept) shows that rates of gestational diabetes in pregnant women peak during the summer months, with a possible link to increasing temperature. The study is by Dr Anastasia Katsarou, Lund University and Skåne University Hospital, Malmö, Sweden, and colleagues.

Seasonality in the onset of type-1 diabetes is well documented (with some studies showing higher winter incidence associated with higher circulating virus levels and lower vitamin D status). However, less is known about the seasonality in the diagnosis of type-2 and [gestational diabetes](#) (GDM). The aim of the present study was to examine seasonal patterns in [glucose](#) tolerance and in the diagnosis of GDM.

A total of 11 538 women who had agreed to take part (the Mamma study) underwent a universally applied standard 75-g oral [glucose tolerance](#) test (OGTT) in the 28th week of pregnancy during 2003-2005 in southern Sweden. This period was chosen because there was a lot of data available for analysis from the Mamma study covering this time. OGTT results from the 3-year study period were grouped together into months and seasons. Statistical modelling was used to calculate differences in GDM across months and seasons, and to examine whether month or season were associated with the diagnosis of GDM. Information on mean monthly temperatures during the study period was obtained from the Swedish Meteorological and Hydrological Institute.

A total of 487 women (4.2%) were diagnosed with GDM during the study period. The monthly frequency of GDM ranged from 2.9% in March to 5.8% in June (see table for all month results). The seasonal frequency ranged from 3.3% in spring to 5.5% in summer (see table for all season results). The differences were statistically significant for both month and season.

Mean monthly temperature ranged from -0.6 °C in the winter to 17.7 °C in the summer. Further analysis showed that the 2-h glucose level increased by 0.009 mmol/L for every degree increase in temperature and this corresponded in a difference of 0.15 mmol/L between winter and summer. Overall, the data, when adjusted for age, showed that the summer months (June-August) were associated with an increased glucose level and a 51% (or 1.5 times) increased frequency of GDM compared with the other seasons. These associations were no longer apparent when also adjusting for mean monthly temperature, suggesting that temperature could be part of the reason for the differences.

The authors conclude: "Our findings suggest seasonal variations in the 2-h glucose concentration and in the proportion of women diagnosed with GDM with a peak in the summer. A positive association with the ambient temperature was demonstrated. Further research is needed to explore the significance of these findings."

They add that a potential mechanism for this relationship is that hypothetically, [temperature](#)-induced changes in peripheral blood flow may affect the composition of capillary blood, representing a mixture of arterial and venous blood, explaining the increased glucose levels during the warmer [summer months](#).

Provided by Diabetologia

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