

GESTATIONAL DIABETES & OUTDOOR AIR TEMPERATURE

Question

Does environmental temperature influence the risk of gestational diabetes?

Background

Brown adipose tissue has the unique ability to generate heat and helps the body acclimatize to cold.

This cold-induced thermogenesis is known to improve insulin sensitivity.

Study



Included 555 911 births among 396 828 women in the Greater Toronto Area from 2002 to 2014.

Looked at mean 30-day outdoor temperature before the date of screening for gestational diabetes (usually the 27th week of pregnancy).



Results

Prevalence of gestational diabetes mellitus:



4.6%

among women exposed to mean 30-day outdoor temperatures of **-10°C or less**

7.7%

among women exposed to mean 30-day outdoor temperatures of **24°C or more**



Each **10°C increase** in mean 30-day outdoor air temperature was associated with a **6%–9% relative increase in the risk of gestational diabetes**, after adjusting for known risk factors.



There was a **similar effect for each 10°C rise** in outdoor air temperature difference between 2 consecutive pregnancies for the same woman.



Interpretation

1. The study showed a relation between outdoor air temperature and risk of gestational diabetes mellitus.
2. Modifying the thermal environment (e.g., lowering the setting on a home thermostat or spending more time outdoors in cooler weather) may reduce a woman's risk of gestational diabetes.
3. Future climate patterns may lead to an increase in the prevalence of gestational diabetes worldwide.