Maternal insulin sensitivity linked to fetal brain activity

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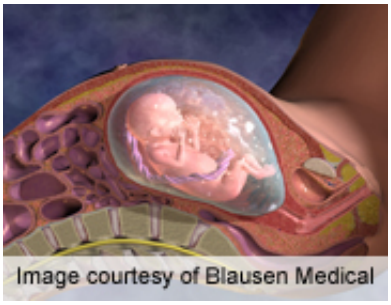

(HealthDay)—Maternal insulin sensitivity is associated with fetal brain responses, according to a study published in the online March 25 in *Diabetologia*.

Katarzyna Linder, from the University Hospital Tübingen in Germany, and colleagues examined whether maternal metabolic changes during the oral glucose tolerance test influence fetal brain activity in a study of 13 healthy pregnant women. Glucose and insulin measurements were taken at 0, 60, and 120 minutes to assess insulin sensitivity. Fetal auditory evoked fields were recorded at each time point and response latencies were determined.

The researchers observed an increase in mean maternal insulin from a fasting level of 67 ± 25 to 918 ± 492 pmol/l at 60 minutes after ingestion

of glucose. Glucose levels increased from 4.4 ± 0.3 to 7.4 ± 1.1 mmol/l. Fetal response latencies decreased over the same period, from 297 ± 99 to 235 ± 84 ms (P = 0.01), and were stable until 120 minutes (251 ± 91 ms; P = 0.39). Sixty minutes after glucose ingestion, a negative correlation was seen between maternal insulin sensitivity and fetal response latencies (P = 0.02). On categorization of the group according to maternal insulin sensitivity, a slower response to auditory stimuli was seen for fetuses of insulin-resistant mothers (283 ± 79 ms) compared with insulin-sensitive mothers (178 ± 46 ms; P = 0.03).

"These findings provide the first evidence of a direct effect of maternal metabolism on fetal brain activity and suggest that central insulin resistance may be programmed during fetal development," the authors write.

More information: Abstract
Full Text (subscription or payment may be required)

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