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Predicting the metabolic future of children using fetal glycated hemoglobin, anovel biomarker

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The lifetime risk of metabolic diseases in offspring of women with gestational diabetesmellitus (GDM) depends, at least in part, on the impact of glycemic fetal programming.

To quantify this impact, we have developed and validated a unique mass-spectrometrymethod to measure the percentage of glycated hemoglobin in cord blood.

This first casecontrolstudy includes 37 GDM women and 30 pregnant women with normal glucosetolerance (NGT).

Glycation of the α-chain (Glα) was higher in neonates from GDM(2.32% vs. 2.20%; P<0.01). Glα strongly correlated with maternal A1c measured atdelivery in the overall cohort (r = 0.67; P<0.0001) as well as in each group (GDM: r =0.66; P<0.0001; NGT: r = 0.50; P=0.01).

Thus, Glα may reflect hyperglycemic exposureduring the last weeks of fetal development. Future studies will confirm Glα is a predictivebiomarker of fetally programmed lifetime metabolic health and disease.

Biography

Jean-Luc Ardilouze studied medicine (Nantes, France, 1979), subsequently specializing in endocrinology (Montpelier, France, 1984). He completed a PhD at University of Oxford in 2004. He is currently a Full Professor of Medicine at the Faculty of Medicine of Sherbrooke (Canada).Dr. Ardilouze's research examines gestational diabetes mellitus (GDM), the pharmacology of insulin,and the regulation of blood flow in adipose tissue. He is the principal investigator and co-investigator in numerous research grants. He is author or co-author of more than 200 scientific publications,abstracts and articles.

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