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Hyperglycemia alters maternal-fetal transport kinetics of manganese, chromium and vanadium in diabetic model human placental lobule *in vitro*: Implications for diabetes mellitus

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Diabetes Mellitus in pregnancy is well known to be associated with increased maternal as well as neonatal mortality and morbidity. Altered disposition of essential trace elements and anti-oxidant function have been implicated in genesis of the disease as well as in increasing incidence of congenital mal-formations in the diabetic state as well. Previous studies in our laboratory have shown altered maternal-fetal disposition of some essential trace elements such Cu, Fe, Mo, Se and Zn in both insulin-dependent as well as gestational diabetic pregnancies. However there have been no reports to date on maternal-fetal transport of essential trace elements such as Cr, Mn and V in diabetic pregnancies in humans or experimental animals. Here we report for the first time in the literature maternal-fetal transport kinetics of the above mentioned trace elements in control and normoglycemic state and have explored the possible effect hyperglycemic diabetic state on the transport kinetics of the above elements in diabetic model human placental lobule *in vitro*, using perfusion of isolated human placental lobules *in vitro*. This perfusion method has been used extensively by us in assessing maternal-fetal transport of a variety of drugs and nutrients, including essential trace elements in control as well as diabetic pregnancies as well. Our studies show that hyperglycemia state alters maternal-fetal transport kinetics of above trace elements *in vitro* which could have nefarious fetal effects on the baby in the womb in hyperglycemic diabetes states.

Biography

Moorkath Nandakumaran obtained his Doctorate degree (PhD) in Reproductive Physiology from University of Paris VI, France in 1979. He worked for 4 years as Research Consultant in Biochemical Pharmacology at St. Vincent de Paul Hospital, Paris, France. He is currently working as Professor of Obstetrics and Gynecology at Kuwait.

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