

2nd International Conference on **Endocrinology**

October 20-22, 2014 DoubleTree by Hilton Hotel Chicago-North Shore, USA

Restoring maternal nutrition to recommended levels at midgestation in previously nutrient restricted ewes improves nutrient transport across the placenta

Yan Ma, Mei J Zhu, Adam B Uthlaut, Mark J Nijland, Peter W Nathanielsz, Bret W Hess and Stephen P Ford

¹University of Wyoming, USA

²University of Texas Health Sciences Center, USA

Nutrient restriction (NR) in pregnant women exposes their fetus to a high risk of intra-utero growth restriction and postnatal disease. Here we have utilized our established ovine model of maternal NR to determine whether the restoration of normal nutrition during pregnancy in NR ewes could improve fetal growth and development. Multiparous ewes received 100% (control, C, n=15) or 50% (NR, n=14) of NRC dietary recommendations from d28-d78 of gestation. On d78, 7 C and 6 NR ewes were necropsied. The remaining 8 C and 8 NR ewes were fed to 100% of NRC from d78-d135 and necropsied. Maternal and fetal blood and cotyledonary (COT) tissue were collected at both d78 and d135. On d78, but not d135, placental and fetal weights were reduced ($P<0.05$) in NR vs. C ewes. Maternal circulating glucose, insulin and leptin levels were decreased in NR vs. C ewes on d78 ($P<0.05$), but similar at d135. Fetal blood glucose and triglyceride levels were lower in NR vs. C ewes ($P<0.05$) on d78, but similar on d135. On d78, glucose transporter (GLUT)1, fatty acid transporter (FATP)4, CD36 mRNA and protein levels were higher ($P<0.05$) in the COT of NR ewes. FATP4 was higher ($P<0.05$) at mRNA and protein levels in COT of NR re-alimented ewes on d135 than C ewes. These data demonstrate placental adaptation to maternal NR through increasing nutrient transport and suggest nutrient restoration as a potential intervention for pregnant women who previously experienced NR.

Biography

Yan Ma received her PhD at the age of 24 from the University of Wyoming and conducted Postdoctoral studies from Yale University School of Medicine. She also received her Master of Public Health and Master of Business Administration degrees from Johns Hopkins University. She has published 9 peer-reviewed articles, presented at over 10 international conferences, and consulted for 15 research projects internationally. She serves as a peer-reviewer for the journals *Biology of Reproduction* and *Placenta*. She has recently entered a career in health economics dedicated in bringing advanced therapeutics to patients worldwide.

yma13@jhu.edu