

Extended Abstract

The relationship between obesity, pregnancy, and levels of indoleamine 2,3-dioxygenase

Eric M. Tyler MD,¹ Donna A. Santillan PhD,¹ Sabrina M. Scroggins, PhD,¹ Eric Devor, PhD,¹ Wendy S. Hamilton,¹ Eileen M. Sweezer,¹ Stephen K. Hunter, MD PhD,¹ Mark K Santillan, MD¹

Keywords: Preeclampsia, obesity in pregnancy, immunology of pregnancy, fetal tolerance

Objective

For a successful pregnancy to occur, foreign genetic material such as the allogeneic fetus must be tolerated within the maternal host. Indoleamine 2,3-dioxygenase (IDO) is an enzyme induced by pro-inflammatory cytokines that has been shown to be key to this process. Obesity as a pro-inflammatory state is associated with poor obstetric outcomes. The primary objective of this study is to investigate the relationship between obesity and IDO activity.

Methods

In this case-control study, 199 obese and 194 non-obese participants had plasma samples analyzed for IDO activity throughout gestation and at delivery. IDO activity was measured

using a published colorimetric method. Clinical data and biosamples were obtained from the University of Iowa Maternal Fetal Tissue Bank (IRB # 200910784). Bivariate and multivariable analyses were performed.

$\alpha = 0.05$

Results

IDO activity is significantly associated with obesity and gestational age, particularly in the second trimester. Logistic regression revealed significantly lower levels of IDO activity in the setting of fetal growth restriction in the second trimester.

Conclusions

This study suggests an association between IDO activity and obesity and gestational age. The lower IDO activity

¹Department of Obstetrics and Gynecology, Carver College of Medicine, University of Iowa Hospitals and Clinics, Iowa City, IA, 52242

Please cite this abstract as: Tyler EM, Santillan DA, Scroggins SM, Devor E, Hamilton WS, Sweezer EM, Hunter SK, Santillan MK. The relationship between obesity, pregnancy, and levels of indoleamine 2,3-dioxygenase. *Proc Obstet Gynecol.* 2015;5(3):Article 8 [2 p.]. Available from: <http://ir.uiowa.edu/pog/> Free full text article.

Corresponding author: Eric Tyler, Department of Obstetrics and Gynecology, University of Iowa, 200 Hawkins Drive, Iowa City, IA 42242, eric-tyler@uiowa.edu

Copyright: © 2015 Tyler, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

level seen in higher WHO Obesity classes is consistent with the pro-inflammatory nature of obesity in pregnancy. Furthermore, the association of a lowerIDO activity with IUGR supports a possible immunologic etiology of a strong inflammatory response leading to placental dysfunction. This not only points to a future direction for research in this area

but may hold potential for being a therapeutic avenue to alter the course of this poor pregnancy outcome before it begins.

Presented at "Practical Update in Ob/Gyn," the University of Iowa Obstetrics and Gynecology Postgraduate conference, 2 October 2015, hotelVetro & Conference Center, Iowa City, Iowa 52240.