

EXPRESIÓN MOLECULAR DE GLUCOCORTICOIDES EN PLACENTA Y SU RELACIÓN CON EL INDICE DE MASA CORPORAL MATERNO

MOLECULAR EXPRESSION OF PLACENTAL GLUCOCORTICOIDS AND THEIR RELATION TO MATERNAL BODY MASS INDEX

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Resumen

La Organización Mundial de la Salud estima que el 40 % de mujeres en edad reproductiva tienen sobrepeso, que impacta en el aumento de embarazos con riesgo de morbilidad perinatal y enfermedades crónicas no transmisibles. Los estudios asocian la obesidad con fragilidad emocional, lo que contribuye negativamente en la regulación de glucocorticoides; las experiencias negativas pueden dejar su huella molecular al modificar la señalización de los glucocorticoides placentarios. El objetivo es determinar la expresión molecular de los receptores de glucocorticoides en la placenta a término de gestantes normopeso, con obesidad pregestacional y obesidad gestacional, y relacionarlas con factores sociales, económicos, demográficos y emocionales. Estudio transversal, en una clínica de tercer nivel en Cali, Colombia. Muestra: 60 mujeres (20 normo peso, 20 con obesidad pregestacional y 20 obesidad gestacional) se les aplicará encuesta epidemiológica, antropométrica y emocional. Sus placentas serán tratadas para extracción de RNA mensajero placentario, seguido de transcripción reversa y PCR en tiempo real del receptor de glucocorticoides NR3C1. Se podrá determinar si existen cambios en los niveles de expresión de los receptores de glucocorticoides NR3C1 en las placentas de los grupos seleccionados por peso materno y si estos cambios se relacionan con las características antropométricas, clínicas y emocionales.

Palabras clave: Glucocorticoides, estrés, obesidad gestacional, obesidad pregestacional, embarazo.

Conflicto de intereses: Ninguno declarado por los autores

Abstract

The World Health Organization estimates that 40% of women of reproductive age are overweight, a contributing factor in the rise in pregnancies with risk of perinatal morbidity and non-communicable chronic diseases. Studies associate obesity with emotional fragility, which negatively affects glucocorticoid regulation; adverse experiences can leave their molecular imprint by modifying placental glucocorticoid signaling. The objective of this study is to determine the molecular expression of glucocorticoid receptors in the placenta at term in pregnant women of normal weight, in those with pregestational obesity, and gestational obesity, in order to correlate the results with a range of social, economic, demographic and emotional factors. Cross-sectional study, in a third level hospital in Cali. Sample: 60 women (20 of normal weight, 20 with pregestational obesity and 20 gestational obesity) will complete an epidemiological, anthropometric and emotional health survey. Extraction of placental messenger RNA will be performed on each placenta, followed by reverse transcription and real-time PCR of the glucocorticoid receptor NR3C1. It will be possible to establish whether there are changes in the expression levels of the glucocorticoid receptors NR3C1 in the placentas of the groups selected by maternal weight and if these changes are related to the anthropometric, clinical and emotional characteristics identified.

Key words: glucocorticoids, stress, gestational obesity, pregestational obesity, pregnancy.

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Referencias

1. C. Loardi et al., "Placental morphology in pregnancies associated with pregravid obesity," *J. Matern. Neonatal Med.*, vol. 29, no. 16, pp. 2611–2616, 2016.
2. Ohlsson B, Manjer J. Sociodemographic and Lifestyle Factors in relation to Overweight Defined by BMI and "Normal-Weight Obesity ." 2020;2020
3. S. Mitchell and D. Shaw, "The worldwide epidemic of female obesity," *Best Pract. Res. Clin. Obstet. Gynaecol.*, vol. 29, no. 3, pp. 289–299, 2015.
4. Saif Z, Hodyl NA, Hobbs E, Tuck AR, Butler MS, Osei-Kumah A, et al. The human placenta expresses multiple glucocorticoid receptor isoforms that are altered by fetal sex, growth restriction and maternal asthma. *Placenta* [Internet]. 2014 Apr 1 [cited 2018 Sep 3];35(4):260–8. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/24559727>
5. Saif Z, Hodyl NA, Stark MJ, Fuller PJ, Cole T, Lu N, et al. Expression of eight glucocorticoid receptor isoforms in the human preterm placenta vary with fetal sex and birthweight. *Placenta* [Internet]. 2015 Jul 1 [cited 2018 Sep 3];36(7):723–30. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/25990415>