Use of a Cord Blood F-Dex Monocyte Binding Assay to Study the Glucocorticoid Sensitivity in Preterm Neonates

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Abstract

Objective

Background:
Glucocorticoids play an important role in the developing fetus; the most important of which is lung maturation by increasing surfactant production and release. Glucocorticoid receptor (GR) functioning changes throughout the fetal period, especially during the transition to extraterine life. Given the importance of glucocorticoids in lung development and functioning, studying glucocorticoid sensitivity (GS) in this population would be helpful, especially in the preterm population, to determine optimal steroid treatment for better lung outcomes. Few studies have characterized the glucocorticoid receptor and its sensitivity using cord blood monocytes. Our pilot studies looking at term neonates born to mother without complications demonstrated that cord blood monocytes could be used as a non-invasive way to measure glucocorticoid sensitivity using a Fluorescein labelled dexamethasone (F-Dex) monocyte binding assay in this population.

Objective and hypotheses:

We propose to use cord blood monocytes to characterize glucocorticoid sensitivity in preterm neonates using a Fluorescein labelled dexamethasone (F-Dex) monocyte binding assay. We also propose to determine what factors can effect GS in neonates.

Methods

30 cord samples were collected from the following groups of mothers: gestational DM, pregestational DM, prenatal steroid exposure, chronic HTN, cholestasis, PIH/Pre-eclampsia, PPROM, oligohydraminos, HELLP/pelvical placenta. We compared F-Dex binding of these groups to 25 term healthy neonates born without any complications that served as controls.

Results

Preliminary results so far show that the F-Dex binding in these cohorts were similar to that in the control neonate populations.

Discussion

Our preliminary results show that the factors of gestational DM, pregestational DM, prenatal steroid exposure, chronic HTN, cholestasis, PIH/Pre-eclampsia, PPROM, Oligohydraminos, HELLP/placenta previa, does not effect F-Dex binding in neonate cord blood monocytes. We will need to collect more sample to examine these factors and others further.

References


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