Objective

We propose to use cord blood monocytes to characterize the glucocorticoid receptor and its sensitivity in term neonates using a Fluorescein labelled dexamethasone (F-Dex) monocyte binding assay.

Methods

20 cord blood samples were collected from term neonates (37-40 week gestation) born to mothers with no pregnancy complications and no labor (scheduled C-Section). We compared the F-Dex binding in this group to 50 healthy pediatric patients (5-22 yo).

Results

We found that the F-Dex binding of the studied neonatal population was similar (within 1 SD) to the pediatric population through the initial concentration ranges of F-Dex. However, there was an increase in binding in the neonatal population in comparison to the pediatric population at the highest concentration. We found that the F-Dex binding of the studied neonate population in comparison to the pediatric population at the highest concentration was similar (within 1 SD) to the pediatric population through the initial concentration ranges of F-Dex. However, there was an increase in binding in the neonatal population in comparison to the pediatric population at the highest concentration.

Discussion

A cord blood F-Dex monocyte binding assay can be used to characterize the GR in neonates. It showed that there is a difference in F-Dex binding at the highest concentrations in the neonate population, as compared to our pediatric population, most likely related to changes in the GR in the process of adaptation to extrauterine life. Our future studies will use this assay to study the GR in preterm neonates to help us determine appropriate steroid dosing and better lung outcomes in these patients with less side effects of steroid use.

References

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