

Abstract

RELATIONSHIP BETWEEN SERUM CORTISOL AND INTERLEUKIN-1 β IN NEWBORNS WITH KIDNEY DISTURBANCE DUE TO ASPHYXIA

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Background: Participation of IL-1 β in implementing stress reaction determined by its influence on the level of glucocorticoids and central brain structures. This cytokine is one of the main triggers of the neuro-endocrine stress response.

Aim: To study the dynamics of interleukin-1 β (IL-1 β) and cortisol in serum during the neonatal period in newborns with kidney disturbance after asphyxia.

Methods: The study involved 100 full-term infants with signs of nephropathy: 50 children who had severe asphyxia, and 50 children with moderate asphyxia. Comparison group included 20 children without asphyxia at birth. Disturbance of kidney function diagnosed if blood creatinine level over 89 $\mu\text{mol/l}$, blood urea more than 8 mmol/l , urine output less than 1 ml/kg/hour . Serum IL-1 β and cortisol levels were determined at 1-2, 7-8 and 25-30 days of life by ELISA.

Results: Asphyxia, regardless of its severity, stimulates the production of IL-1 β , enhances strength and correlation between IL-1 β and cortisol, which causes an increase its level in the serum. Continuous stimulation of the adrenal cortex by cytokine in case of severe asphyxia leads to a change in the correlation's character (-0.328 , $p < 0.05$) and inhibition of cortisol production by the end of the neonatal period.

Conclusions: Cortisol level in children with disturbance kidney function during the neonatal period depends on the severity of asphyxia and levels of IL-1 β . Depletion of hypothalamic-pituitary-adrenal system in case of severe asphyxia disrupts stress-induced response and adaptation newborn to extrauterine life.

Assigned speakers:

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