

THE EFFECT OF CRITICAL ILLNESS ON ACTH, CORTISOL AND ALDOSTERONE IN PRETERM INFANTS

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Objective: To investigate the effect of illness on preterm infant's hypothalamus-pituitary-adrenal axis, we measured the concentration of cortisol, aldosterone and ACTH.

Methods: Ninety preterm infants were divided into two groups: gestational age (GA) ≥ 34 weeks' and GA < 34 weeks'. We measured serum cortisol, aldosterone and ACTH within 72 hours after birth, day 7 and day 14.

Results:

(1) The serum cortisol concentration on severe illness was higher than that on mild illness. GA ≥ 34 weeks', the cortisol concentration on severe illness infants was significantly higher than mild ill infants within 72 hours ($t = -2.263$, $P = 0.029$). GA < 34 weeks', the cortisol concentration on severe illness infants was significantly higher on the day 14 ($t = -2.913$, $P = 0.006$).

(2) The cortisol concentration was significantly decreased on the day 7 and day 14 than that within 72 hours in the GA ≥ 34 weeks' ($F = 4.679$, $p = 0.012$);

(3) The cortisol concentration on death infants was significant higher than that on survivors on the day 14.

(4) When the cortisol concentration was above the 75th, the incidence of mechanical ventilation therapy, glucose metabolism disorder, gastrointestinal hemorrhage, severe periventricular - intraventricular hemorrhage and brain leukomacia, chronic lung disease, and mortality rate were increased strikingly.

Conclusions: The preterm infant already has the ability to response stimuli by regulating cortisol secretion. The cortisol concentration is correlated with the severity of the disease, complications and prognosis.