CONTINUING NEURONAL INJURY OF HIGH RISK PRETERM NEWBORNS

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Background: Hypoxic ischemic injury of central nervous system is one of the main causes of severe and long term neurologic deficits in children.

Aims: The purpose of this study is to detect the main risk factors for early neurologic outcome of preterm infants.

Methods: 45 infants 32-37 weeks of gestational age, with perinatal encephalopathy were included to study. Apgar scale, gestational age, intrauterine growth and birth conditions were the main factors for risk scoring. According to risk factors all newborns were categorized as low, moderate and high risk groups. Neurospecific enolase (NSE) was detected in umbilical cord blood and peripheral blood of newborns by immunofluorescent analysis for determining neuronal tissue damage. Brain ultrasound (US) with 5 and 7,5 MHz transducers was used for assessment of brain injury during early neonatal period.

Results: It was detected positive correlation between NSE and poor neurological and brain US findings of neonatal period. NSE increased in early neonatal period ($45,8 \pm 4,2$ ng/ml) and significantly decreased till the end of neonatal period ($29,5 \pm 3,2$ ng/ml) in low and moderate risk group infants ($p < 0.05$). But in high risk group infants it was detected increasing of NSE level in peripheral blood during all neonatal period especially in infants undergoing birth asphyxia after intrauterine hypoxia.

Conclusion: Hypoxic ischemic injury of nervous system is not limited by only perinatal period and accompanies with continuing neuronal injury during neonatal period in high risk group infants, which increases the severity of perinatal encephalopathy.