

Results: sICAM level in the main group {543,2 (267-729)ng/ml} was relatively higher than comparison {399(230-584) ng/ml, $p < 0,05$ } and control groups {379 (117-507) ng/ml; sVCAM-1 level in the main group {350 (700-2100) ng/ml } was higher than comparison and control groups ,too {820 (630-1100) ng/ml; $p < 0,05$; 625 (530-1020) ng/ml ; $p < 0,001$ }

Conclusions: Our study showed ,that endothelial injury play a major role in the CNS pathology of newborns.

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MRI AND OUTCOME OF NEONATES TREATED WITH MILD HYPOTHERMIA AFTER PERINATAL ASPHIXIA

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Background and aims: HIE severity and MRI findings are predictors of neurological outcome in asphyxiated neonates. Mild hypothermia may reduce the severity of basal ganglia and thalamus lesions, which are predictive of abnormal outcome. Moreover hypothermia does not induce any unexpected cerebral lesions. We compare MRI lesions with HIE grade and neurological outcome.

Methods: From December 2006 in S. Gerardo Hospital NICU, mild hypothermia (selective head cooling) is the standard of care for the hypoxic-ischemic newborns. Patient's selection and treatment were done according to the protocols employed in the published randomized trials. The treated neonates were 26, 12 infants had hypoxic-ischemic encephalopathy (HIE) grade II and 14 had HIE grade III.

MRI (T1-T2 and diffusion-weighted sequences) was performed within 15 days of life and classified according to the Mercury's classification. The neurological outcome was assessed at 12 months.

Results: MRI showed cerebral lesions in 71% (mostly mild). Unexpected MRI lesions weren't seen. There is no correlation between severity of HIE and MRI lesions; moreover there is not correlation between the severity of MRI cerebral lesions and motor delay or cerebral palsy.

Conclusions: in our population of cooled infants, neurological outcome is not associated with the degree of HIE and the severity of MRI lesions

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CEREBRAL AUTOREGULATION DURING 24 HOURS IN PRETERM INFANTS MEASURED BY NEAR-INFRARED SPECTROSCOPY

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Background: Preterm infants might have a disturbed cerebral autoregulation. An indirect way to monitor cerebral blood flow is by Near-Infrared Spectroscopy (NIRS). NIRS measures the regional cerebral tissue oxygenation (r_cSO_2). By combining r_cSO_2 with the transcutaneous arterial oxygenation ($tcSaO_2$), the Fractional Tissue Oxygen Extraction (FTOE) can be calculated. In case of diminished cerebral blood flow, FTOE will increase.

Aim: To determine whether preterm infants have cerebral autoregulation.

Patients and Methods: In this observational study we included preterm infants < 32 weeks gestational age, in the first 72 hours after birth. For 24 hours, r_cSO_2 , $tcSaO_2$, and mean arterial pressure (MAP) were measured every five minutes, and FTOE was calculated: $FTOE = (tcSaO_2 - r_cSO_2) / tcSaO_2$. Clinical data were collected (gestational age, birth weight, Apgar scores, Hb, PCO_2 , ventilation mode). Spearman's correlation coefficients were calculated in each individual patient to show absence of autoregulation, indicated by a significantly negative correlation between MAP and FTOE.

Results: We included 25 infants with a median gestational age of 28.8 weeks and a median birth weight of 1245 gram. In 10 infants we found a negative correlation (ρ ranging from -0.432 to -0.156) between MAP and FTOE over 24 hours, suggesting absent autoregulation. None of the clinical variables influenced the presence or absence of autoregulation.

Conclusion: Cerebral autoregulation appears to be absent in almost half of the studied infants, suggested by the presence of a negative correlation between MAP and FTOE. We could not explain the presence or absence of autoregulation by clinical variables.