Lactate acidosis – marker of severity of perinatal hypoxia

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The aim of the study was to investigate into the role of lactate acidosis in the severity of perinatal hypoxia.

Materials and methods. Study included 230 newborns of the 1st week. Two groups of patients were selected depending on the Apgar score on the 1st minute of life. Group A – 187 children with Apgar score 6 points or less (gestational age 32.9 ± 3.7 weeks, body weight at birth 2123 ± 842 g.) Group B – 43 children with Apgar score of 7 points or more (gestational age 36.1 ± 2.3 weeks, weight 2868 ± 600 g.) All newborns required mechanical ventilation (MV).

Results. At birth in group A the leading clinical symptoms were perinatal asphyxia due to acute intrapartum hypoxia, neonatal aspiration of amniotic fluid, respiratory distress syndrome and pneumonia. Clinical signs of asphyxia corresponded to acidosis of varying severity. Hyperlactatemia was characteristic of 35.8% of children, of which 52.2% showed an increase in blood lactate of more than 7 mmol/l. Blood pH values less than 7.25 were detected in 11.3% of children, of which in 38.2% of patients blood pH (7.2-6.8) was combined with hyperlactatemia (7-15 mmol/l). A negative moderate correlation was established between the Apgar score on the 1st minute of life and the blood lactate level ($r = -0.3881$; $p = 0.0000001$). In group B an increase in lactate was present in 23.2% of children, a pH was 7.25-7.08 in 28%.

Conclusion. Lactate acidosis is an objective marker of perinatal hypoxia. The lower the Apgar score at birth the more pronounced is the change in metabolism. The appearance of hypoxia in the early hours of postnatal age is not accompanied by development of severe lactate acidosis.