
NEW METHOD OF DIAGNOSIS AND TREATMENT OF RESPIRATORY DISORDERS IN NEONATES

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Objective: To investigate the possibility of using capnography for pre-clinical diagnostics of pathophysiological mechanisms of respiratory disorders.

Methods: We assessed peculiarities of capnogram (C) in 35 neonates with gestational age 32 – 34 weeks (n=15), 35 – 37 weeks (n=16) and 38-40 weeks (n=4) with respiratory disorders during the first 2-3 hours of life. The data were analysed taking into account functional state of central nervous system (CNS) and cardio-vascular system.

Results: We distinguished 3 types of C. depending on the presence of alveolar plateau: alveolar plateau is present (1), alveolar plateau is absent (2) and alveolar plateau is interrupted by sighs (3). There percentage was changed, particularly increasing of 2 type reflects functional disorders of CNS. End-tidal concentration of CO₂ reflects disorders of lung function due to alveolar ventilation (CO₂ > 5,0 vol%), lung hemodynamics (CO₂ < 4,0 vol%) or both (CO₂ < 3,2 vol%). Individual choosing of oxygen therapy using these data helps to decrease severity of respiratory disorders.

Conclusion: Monitoring of C should be used for assessment of severity and main pathophysiological mechanism of respiratory disorders for optimisation of respiratory therapy in neonates.

PECULIARITIES OF DAMAGE OF CNS FUNCTIONAL STATE AND CEREBRAL HEMODYNAMIC AT THE CHILDREN WITH CONSEQUENCES PERINATAL ENCEPHALOPATHY

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Influence of natal cerebrospinal traumas on ischemia of a developing brain, especially under action press is known. The special importance is given to infringements circulation vertebrobasilar region (VBR). Changes of CNS functional state (on data EEG) at disturbance cerebral hemodynamic (on data rheoencephalographie) in VBR and carotid artery region was investigated. We investigated 92 children in the age from 5 to 9 years (mean 7,0±2,1) with the complaints to head pain, parasomnia, tiredness and difficulty in training. The 2 groups the surveyed children among with moderately expressed (I) and sharply expressed (II) by changes of bioelectrical activity, mainly in parietal-occipital (P-O) and posterior temporal (T5, T6) areas of a head brain are allocated. In the first group (10 person) in the specified areas dominated hypersynchronous alpha-rhythm (frequency 8-10 Hz, amplitude up to 100 mkV). For the present group the moderate decrease of amplitude intracerebral pulse waves (AIPW) in VBR on rotation of a head on 30-40 %, from reference values with 0,1 on 0,17 Om was characteristic at safe reactivity of microvessels of a channel on delay of breath at 90 % of the children. The second group (15 person) differed by instability of a functional state with alternation alpha-rhythm and theta-waves (4-6 Hz, 80-120 mkV). Such instability is found out at sharply expressed (up to 45-70 %) decrease AIPW in VBR on rotation of a head. In 67 % of cases was marked as non reaction of microvessels of a channel on delay of breath. This groups was united by relative safety AIPW in VBR in limits of norms for ages and increased tonus of vessels in carotid arteries region and VBR. Thus at 30 % of the children both groups were decreased AIPW up to 0,1-0,12 Om (N=0,15-0,17 Om). Received data allowed to connect a degree of changes of a cerebral cortex functional state and cortical-subcortical relations with depth of infringements cerebral hemodynamic for the account compression influences in system spinal and basic arteries at the children with consequences perinatal encephalopathy.