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THE BIOCHEMICAL MECHANISM OF RESTORATION OF ACID-ALCALINE HOMEOSTASIS OF NEWBORN (UNDER ENTEROPATHOLOGY) CALVES, THEIR CORRECTION

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The results of the study of the biological regularities formation of the acid-base homeostasis of the organism in the calves that are one month old, including recovered from neonatal enteropathology calves are summarized in this publication.

The parameter stabilization of the blood acid-base balance in the calves occurs during the first 24–36 hours of life involving the excretory organs (lungs, alimentary tract, kidney), blood buffer systems and metabolic system of the acid-base homeostasis (through the change of the direction and intensity of the metabolism processes).

With the nascence of the dyspepsia symptom the bicarbonate and buffer bases concentration decreases and the blood active reaction shifts to the acid side in the calf blood. This is accompanied by the development of the metabolic acidosis of varying severity. The increase of the pCO_2 in blood of such animals is observed. Herewith, the excessive formation of protons in the intracellular environment as a result of the tissue hypoxia is revealed. The oxygen deficiency in the tissues leads to the inhibition of the H^+ ions neutralization by the water formation; to the excessive lactate production as a result of the activation of anaerobic glycolysis; to the increase of the acids formation. Among these acids beta-hydroxybutyric and acetoacetic acid are of the most importance. Following intensive rise of the proton concentration in the internal environment of the organism of affected animals is explained by the emergence of the hemic hypoxia (a lack of the hemoglobin buffer system). It leads to the disturbances in the gas exchange and diffusion at the alveolar and tissue capillaries and to the functional disorders of the kidneys. The last is revealed through the insufficient excretion of non-volatile acids through the urinary system. This state of the organism requires to be corrected.

The biochemical mechanisms that have been a basis for the development and practical use of the liposomal form of the biologically active supplement «FLP-MD» from milk phospholipids in veterinary medicine in case of the neonatal enteropathology of non-contagious etiology in the newborn calves are described.