

CORRECTION OF NON-SPECIFIC REACTIVITY INDICATORS IN EXPERIMENTAL OBSTRUCTIVE JAUNDICE IN MINI-PIGS

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Abstract

Background: Hepatocellular insufficiency in obstructive jaundice significantly worsens the prognosis and increases the risk of adverse outcomes. Since the severity of hepatic dysfunction correlates with the degree of immunological impairment, optimizing post-operative immunocorrection remains a critical issue.

Aim: To investigate the state of non-specific reactivity following biliary decompression in an experimental model of obstructive jaundice in mini-pigs and to evaluate the effect of an immunomodulatory drug during the post-decompression period.

Materials and Methods: The study was conducted at the RyazSMU WetLab between November 2022 and February 2024, involving 25 laboratory mini-pigs. The animals were randomly divided into two groups: a Control Group ($n=12$) and a Comparison Group ($n=13$), which received the immunocorrective drug Aminodihydrophthalazindione sodium. The study consisted of three stages:

Stage I: Induction of experimental obstructive jaundice via laparoscopic ligation of the common bile duct.

Stage II: Removal of the ligature on day 7; the post-decompression recovery period lasted 7 days.

Stage III: Euthanasia.

At each stage, blood samples were collected for clinical, biochemical, and immunological analysis, alongside excisional liver biopsies.

Results: To objectify liver morphology, four standard criteria were assessed: septal sclerosis, lymphocytic infiltration, degree of bile duct proliferation, and hepatic lobule integrity. The Control Group showed increasing morphological destruction from the moment of decompression until the final stage. A clear correlation was observed between fibrosis and the formation of false lobules, marked sclerosis of the portal tracts, and extensive bile duct proliferation. Biliary cirrhosis was diagnosed in 10 out of 12 control animals. In contrast, the Comparison Group (receiving Aminodihydrophthalazindione sodium) showed a more favorable morpho-functional state, with early-stage biliary cirrhosis observed in only 5 out of 13 animals. Furthermore, the Comparison Group exhibited significantly faster normalization of laboratory parameters.

Conclusions: Morphological changes in the liver, developing within a week of bile duct ligation, correlate closely with shifts in non-specific reactivity indicators. The inclusion of Aminodihydrophthalazindione sodium in the complex therapy of the post-decompression period facilitates rapid normalization of these parameters and improves liver recovery.

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