

LIVER ADAPTATION MECHANISMS IN VARIOUS PATHOLOGIES

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The study of regulating mechanisms for restoring liver structure and function using different experimental models has important practical value for management of regenerative processes in various pathological conditions. In livers with chronic hepatitis enhancement of hepatocyte hypertrophy and polyploidy occurs during some stages of the regenerative process. We have shown that after bilateral adrenalectomy some populations of liver cells have increased genome content. Also within 4 days after bile duct ligation there is accumulation of polyploidy cells and maximal value of mitotic activity in liver. The goal of our work was to study adaptive mechanism of the liver in various pathological conditions. The investigations were carried out on adult rats. Bile duct ligation, bilateral adrenalectomy and their combinations were used as experimental models. The quantity of DNA per cell was evaluated by using the computer software Image J 3.36.

It is established that destructive changes caused by combined pathologies (hormonal disbalance and cholestasis) accelerates the mitotic activity during 48 hours after the cholestasis. The mitotic activity on the 4th day after the common bile duct ligation causes the polyploidization and proliferation in destructive liver parenchyma. The multiplication of genome in liver parenchyma is realized via the classical mechanism of polyploidization (blocking of cytokines is and/or kariokinesis) in condition of combined pathologies. The restoration of organ structure and function in combined pathologies is determined by the kind of pathology and damage rate.

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