

POLYPLOIDIZATION OF THE CELLS IN CHOLESTATIC LIVER

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After severe liver injury or surgical resection, liver cells must regenerate to compensate for the lost tissue. Along with the cell proliferation, polyploidization and hypertrophy is important in the restoration of mass and function of the organ. It is not clear yet, the processes are initiated by the same factors, or they have different signaling pathways. Various growth factors which reacts with C-MET, stimulate cells proliferation and differentiation through the activation of MAPK-signaling pathway. Previously we have shown significant increasing of mitotic activity and polyploidization on 4th day of cholestasis. It is determined that some growth factors concentration are increased on the second day after the common bile duct ligation.

The goal is to determine the signaling pathway initiates hepatocytes polyploidization in cholestatic liver.

Materials and methods. Experiments were carried out on adult white rats (130-150g). C-Met inhibitor was used for blocking MAPK pathway. Animals were separated into three groups: I-control intact animals, II –cholestatic animals (4th day), III-cholestatic animals with inhibitor injection (1mg/kg) during 4 days after surgery. Nuclear DNA content was detected by using of computer software ImageJ 1.36 b. Determination of colchicine mitotic index was used for assessment of proliferative activity.

Results. It was established that quantity of polyploid cells (4c, 4cx2, 8c) was increased in II group in compare to intact animals. It has been shown that injection of inhibitor doesn't influence on the proportion of polyploid cells in animals of III group but decreases the hepatocytes mitotic index compared to II group.

Conclusion. We can conclude that one of the MAPK activating signaling pathway, doesn't take part in the mechanism of polyploidization in cholestatic liver.