

Parenchymal and nonparenchymal cellular proliferation dynamics after partial hepatectomy with and without 2-Acetylaminofluorene injection in rats

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Restoration of liver after partial hepatectomy (PH) depends on proliferation dynamics of parenchymal and nonparenchymal liver cell populations. To study separately proliferation impact of nonparenchymal cells it is recommended to inhibit hepatocytes proliferation by injection of acetoaminofluorene (AAF). The aim of the research was to study dynamics of parenchymal and nonparenchymal cells proliferation after PH w/wo AAF injection.

Experimental groups were 1) PH; 2) PH with intraperitoneal AAF injection (0,2ml of 1.5g/100ml). Liver paraffin slices (1,5,7,14,21,28 days after transplantation) were stained with antibodies against proliferation marker Ki-67.

The first days after PH 49,05±6,14% of hepatocytes and 15,59±1,46% of nonparenchymal cells proliferate in portal tract region, where cells were activation on 2nd and 14th days. In the region of central vein Ki-67+ hepatocytes and nonparenchymal cells increased only once on 2nd day (31,41±4,72 and 39,70±0,79 respectively). Injection of AAF inhibited proliferation of both cell populations. In region of central vein there were no Ki-67+ hepatocytes during the whole experiment, Ki-67+ nonparenchymal cells appeared later on 7th day and 5 times less than in PH group. In portal tract region proliferation dynamics of hepatocytes and nonparenchymal cells had 2 phases, but nonparenchymal cells activation was later (on 7th and 28th days). Ki-67+ hepatocytes were over 10 times less, nonparenchymal cells - 5-6 times less. AAF injection inhibits proliferation of parenchymal and nonparenchymal cells, has severe effect on central vein region, leads to reduction of liver regeneration (cellular dystrophy and degeneration on 28th days). Work supported by Program of Competitive Growth of KFU.