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Changes of liver microstructure after partial hepatectomy in rats

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Abstract

Ability of mammalian liver to regenerate is one of the favorite examples of "regenerative medicine". At the same time liver regeneration can not be viewed as a simple hypertrophy, it must have some appropriate steps. Understanding of these processes is crucial for correct interpretation of liver therapy results, especially after cellular therapy. But, unfortunately, original and first-hand data regarding changes in liver microstructure during regeneration is relatively scarce. This work was dedicated to study changes of liver microstructure during liver regeneration after partial hepatectomy in rats. We analyzed proliferative processes, perisinusoidal cells involvement, sizes of classical hepatic lobules, participation of bile ducts, branches of afferent and efferent hepatic vessels in liver regeneration on 1, 2, 3, 5, 7 postoperative days. Our results have shown that liver microstructure during regeneration after partial hepatectomy undergoes two stages: hypertrophy of hepatic lobules by proliferation of liver cells until 4th day and division of hepatic lobules by branching of bile ducts, hepatic artery, portal and central veins from 4th until 7th postoperative day.

Keywords

Liver lobule, Liver microstructure, Partial hepatectomy, Regeneration