

基础研究

门腔静脉转位术对大鼠肝细胞凋亡及PCNA表达的影响

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摘要:

目的: 观察大鼠行门腔静脉转位术(PCT)后的肝功能及肝组织学变化。方法: 将72只雄性SD大鼠随机均分为实验组和对照组, 实验组大鼠行PCT(门静脉近端与下腔静脉远端进行端-端吻合, 门静脉远端与肝下腔静脉近端进行端-端吻合), 对照组大鼠行门静脉和下腔静脉血流阻断, 时间与实验组对应者无肝期一致。两组分别于术后6, 12, 24 h和3, 7, 28 d各取6只大鼠, 行血清谷丙转氨酶(ALT)和谷草转氨酶(AST)检测, 肝组织病理学检查及凋亡检测, 同时检测肝组织核增殖抗原(PCNA)的表达。结果: 术后24 h内实验组大鼠血清ALT, AST水平明显高于对照组(均 $P<0.05$), 但呈逐渐降低趋势, 在3, 7, 28 d各时间点两组大鼠血清ALT, AST水平均无统计学差异(均 $P>0.05$); 病理学观察显示, 对照组肝组织形态基本正常, 而实验组呈轻微病理学改变, 表现为细胞水肿、点状坏死和少量炎性细胞浸润, 以术后6 h最为明显; 两组在各时间点均可见少量肝细胞凋亡, 但凋亡指数(AI)均无统计学差异(均 $P>0.05$); 实验组肝组织PCNA表达在术后24 h及3, 7 d时明显高于对照组(均 $P<0.05$), 但28 d后下降, 与对照组无统计学差异($P>0.05$)。结论: PCT后近期对肝脏造成一定的损害, 但长期可能不会对肝细胞增殖和凋亡造成明显的影响。

关键词: 门腔静脉转位术; 肝细胞; 细胞凋亡; 增殖细胞核抗原

Apoptosis and PCNA expression in rat's liver following portacaval transposition

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Abstract:

Objective: To observe the liver function and histological alterations in rats after portacaval transposition (PCT). Methods: Seventy-two male SD rats were equally randomized into experimental group and control group. Rats in experimental group underwent PCT operation by end-to-end anastomosis of the proximal portal vein to the distal inferior vena cava, and end-to-end connection of the distal portal vein to the proximal inferior vena cava, while rats in control group underwent transient blood flow blockage of the portal vein and inferior vena cava for the same periods of the anhepatic phase as their counterparts in experiment group. At 6, 12 and 24 h, and 3, 7 and 28 d after surgery, 6 rats in each group at each time point were sacrificed, respectively. The serum levels of alanine aminotransferase (ALT) and aspartate aminotransferase (AST) in rats of the two groups were measured, the pathological examination and hepatocyte apoptosis assay of liver tissues were performed and the expression of the proliferating cell nuclear antigen (PCNA) in the liver tissues were also determined. Results: The serum levels of ALT and AST in rats of experimental group were significantly higher than those of control group at 6 and 12 h after operation (all $P<0.05$), both of which presented a declining trend and showed no significant difference with those of control group at 3, 7 and 28 d after operation (all $P>0.05$). The pathological examination showed that the liver tissues in control group were generally normal, and in experimental group showed mild pathological changes such as cellular swelling, spotty necrosis and small amount of inflammatory cell infiltration, which were most evident at 6 h after operation. A small amount of apoptotic liver cells were seen in both groups at each observation time points, but no significant difference was noted in the apoptotic index (AI) between the two group (all $P>0.05$). The PCNA expressions in the livers of experimental group were significantly higher than those of control group at 24 h, 3 and 7 d after operation (all $P<0.05$), but were decreased at 28 d after operation and showed no difference with that of control group ($P>0.05$). Conclusion: PCT can cause a certain degree of liver impairment in short-term of postoperative period, but it may not exert obvious impact on cell proliferation and apoptosis of the liver in long-term period.

Keywords: Portacaval Transposition Hepatocytes Apoptosis Proliferating Cell Nuclear Antigen

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