

 中文标题 检索 跨刊检索

尿液NGAL,KIM-1,IL-18在商陆所致的大鼠肾损伤中的变化特征及其联合检测的意义

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中文摘要:目的: 探讨肾损伤标志物中性粒细胞明胶酶相关脂质运载蛋白(NGAL)、肾损伤因子-1(KIM-1)、白介素-18(IL-18)在商陆所致的大鼠肾损伤中的变化特征及其联合检测的意义。方法: Wistar大鼠随机分为商陆水煎液高、低剂量(生药40, 20 g·kg⁻¹·d⁻¹)组和对照组, 连续灌胃35 d, 于第7, 14, 21, 28, 35, 42 d采集血、尿样, 并分批解剖处理。生化分析仪检测血清总蛋白(TP)、白蛋白(ALB)、尿素氮(BUN)、肌酐(CR)、尿液uTP, uALB含量, 酶联免疫吸附法(ELISA)检测尿液NGAL, KIM-1, IL-18浓度。光镜/电镜下观察肾脏病理形态学改变。ROC曲线比较各血清/尿液指标及联合检测的曲线面积。结果: 给予大鼠40, 20 g·kg⁻¹商陆水煎液35 d可致肾损伤, 以肾小管上皮细胞变性、蛋白管型为主要病理表现, 恢复期部分损伤可逆。与对照组相比, 各剂量组BUN, CR, uTP多呈下降趋势, 第21天uALB显著升高且持续至给药末。NGAL, KIM-1, IL-18第7天即开始升高, 第14天起各剂量组均有显著性差异(P<0.01), 恢复期高剂量组KIM-1仍有显著变化。ROC分析三者的曲线面积为0.846, 0.837, 0.863(P<0.01), 远远高于BUN, CR等。而联合检测的面积达0.947。结论: 尿液NGAL, IL-18, KIM-1能在一定程度上预测或提示肾损伤的发生、发展, 具有较高的敏感性和部位特异性。其联合检测更能提高检验效能。

中文关键词: NGAL KIM-1 IL-18 联合检测 商陆 ROC

Characteristics of changes in urinary NGAL, KIM-1 and IL-18 in Phytolaccae Radix-induced renal injury in rats and significance of combined detection

Abstract: Objective: To explore the characteristics of changes in neutrophil gelatinase-associated lipocalin (NGAL), kidney injury molecule-1 (KIM-1) and interleukin-18 (IL-18) in Phytolaccae Radix-induced kidney injury in rats and the significance of the combined detection. **Method:** Wistar rats were divided into three groups: high and low dose (crude drug 40, 20 g·kg⁻¹·d⁻¹) Phytolaccae Radix decoction groups and the control group, and orally administrated with distilled water or equal volume of Phytolaccae Radix decoction for 35 consecutive days. Their blood and urine samples were collected on day 7, 14, 21, 28, 35, 42. The anatomical analysis was conducted for each group. The contents of serum total protein (TP), albumin (ALB), blood urea nitrogen (BUN), creatinine (CR) and urinary TP and ALB were detected by means of biochemical analyzer. The concentrations of urinary NGAL, KIM-1 and IL-18 were measured by enzyme-linked immunosorbent assay (ELISA). The morphological changes of renal pathology were observed by light or electron microscopy. The curve areas of various serum or urine indexes and the combined detection were compared by receiver operating characteristic curve (ROC curve). **Result:** Rats were given Phytolaccae Radix decoction at the doses of 40, 20 g crude drug/kg daily for 35 consecutive days to induce kidney injury characterized by the degeneration of renal tubular epithelial cell and protein cast. The injury was partially reversible during the recovery period. Compared with the control group, the content of serum BUN, CR and urinary TP in each dose group mostly showed a downward trend. On day 21, the content of urinary ALB obviously increased till the end of administration. The contents of urinary NGAL, KIM-1 and IL-18 began increasing on day 7. Since day 14, high and low dose groups showed significant difference (P<0.01). The high dose group even showed notable changes during the recovery period. According to ROC analysis, the curve areas of NGAL, KIM-1 and IL-18 were 0.846, 0.837 and 0.863 (P<0.01), respectively, much higher than that of BUN and CR. The area of the combined detection was up to 0.947. **Conclusion:** Urinary NGAL, IL-18 and KIM-1 could forecast and indicate the occurrence and development of renal injury to some degree, and show higher sensitivity and site specificity. The combined detection could further improve the test efficiency.

keywords: NGAL KIM-1 IL-18 combined detection Phytolaccae Radix ROC

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