

[1]曹雪娇,侯卫平,张媛媛,等.P2X7/NALP3在急性肾小管坏死肾组织中的表达及意义[J].第三军医大学学报,2014,36(06):558-563.

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P2X7/NALP3在急性肾小管坏死肾组织中的表达及意义(PDF) 分享到

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Title: Expression and significance of P2X7/NALP3 in renal tissue of acute tubular necrosis patients

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摘要: 目的 观察急性肾小管坏死 (acute tubular necrosis, ATN) 患者肾组织中P2X7/NALP3的表达情况, 探讨其与肾小管损伤程度、肾小管间质炎症、肾小管上皮细胞凋亡情况及肾功能损害之间的关系。 方法 选取2011-2013年在我科住院治疗, 经肾活检诊断为ATN的患者肾组织; 以同期外科肾肿瘤切除时远离肾肿瘤的边缘正常肾, 且经光镜证实为正常的肾组织为对照。免疫组化法检测ATN患者肾小管上皮细胞中P2X7/NALP3、caspase-1、caspase-3、IL-1B、IL-18的表达, 以及肾小管上皮细胞的凋亡; 半定量分析肾小管损伤程度及肾小管间质炎症细胞的浸润。收集患者入院第1天 24 h 的尿量、血肌酐(serum creatinine, Scr)及尿素氮(blood urea nitrogen, BUN)等数据, 计算肾小球率过滤 (estimated glomerular filtration rate, eGFR), 将P2X7/NALP3的表达与肾小管损伤程度、肾间质炎症反应、肾小管上皮细胞凋亡及ATN患者肾功能指标进行相关性分析。 结果 与对照组比较, ATN患者肾小管上皮细胞P2X7/NALP3表达明显升高($P<0.01$), 其与caspase-1、caspase-3、IL-1B、IL-18表达水平显著正相关, P2X7/NALP3与ATN患者肾小管损伤 ($r=0.787, r=0.530$)、小管间质炎症细胞浸润程度 ($r=0.543, r=0.419$)、肾小管上皮细胞凋亡程度 ($r=0.719, r=0.671$)、血肌酐 ($r=0.707, r=0.706$)、尿素氮 ($r=0.584, r=0.623$) 呈正相关 ($P<0.01$), 与肌酐清除率 ($r=-0.622, r=-0.59$)、尿量 ($r=-0.659, r=-0.62$) 呈负相关($P<0.01$)。 结论 ATN患者肾组织中P2X7和NALP3的表达与肾小管上皮细胞凋亡、炎症反应及肾功能损害具有明显相关性, 提示P2X7/NALP3可能参与ATN患者肾小管上皮细胞凋亡、炎症反应, 进而导致肾小管损伤及肾功能受损。

Abstract: Objective To investigate the expression of purinergic receptor P2X, ligand-gated ion channel 7 (P2X7) and NLR pyrin domain containing-3 protein (NALP3) in patients with acute tubular necrosis (ATN) and its relationship with tubular injury, interstitial inflammation, apoptosis and renal dysfunction.

Methods Twenty-five patients with ATN were enrolled (patient group), and the pathologically confirmed normal renal tissues adjacent to the renal neoplasms were assigned as a control group. Immunohistochemistry was performed to detect the expression of P2X7, NALP3, caspase-1, caspase-3, IL-1B, and IL-18 and the apoptosis cells in renal tubular epithelial cells. Tubular injury and interstitial inflammation were assessed using a semi-quantitative scale. Data of serum creatinine (SCr), blood urea nitrogen (BUN) and the urine of the first 24 h were collected and the estimated glomerular filtration rate (eGFR) was calculated. The correlations of the expression of P2X7 and NALP3 with tubular injury, interstitial inflammation, apoptosis, and renal function indicators were analyzed. Results The

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expression of P2X7 and NALP3 in renal tubular epithelial cells was both increased significantly in the patient group as compared to those in the control group ($P<0.01$), and the expression was positively correlated with the expression of caspase-1, caspase-3, IL-1 β and IL-18 ($P<0.01$). The expression of P2X7 and NALP3 was significantly positively correlated with renal tubular injury ($r=0.787, r=0.530, P<0.01$), interstitial inflammation ($r=0.543, r=0.419, P<0.01$), apoptosis ($r=0.719, r=0.671, P<0.01$), SCr ($r=0.707, r=0.706, P<0.01$) and BUN ($r=0.584, r=0.623, P<0.01$), and negatively correlated with eGFR ($r=-0.622, r=-0.59, P<0.01$) and urine volume ($r=-0.659, r=-0.62, P<0.01$). Conclusion P2X7 and NALP3 expressed in renal tissues of ATN are significantly correlated with renal tubular interstitial inflammation, apoptosis and renal dysfunction in ATN patients, suggesting that P2X7 and NALP3 may play an important role in tubular injury of acute renal failure by participating in inflammation and apoptosis.

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