

## 论文 大鼠肾脏损伤早期HIF-1 $\alpha$ 、PPAR- $\gamma$ 的表达及其对肾脏的保护机制

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### 摘要:

**目的** 探讨经体表创伤后肾脏组织中缺氧诱导因子-1 $\alpha$  (HIF-1 $\alpha$ )、过氧化物酶体增殖物激活受体 $\gamma$  (PPAR- $\gamma$ )表达的变化, 及创伤后肾脏损伤与修复的作用机制。**方法** 采用自由落体生物撞击仪撞击大鼠脊肋区复制创伤动物模型。实验大鼠分为5组, 包括非创伤对照组、创伤后1、6、12、24h组。采用免疫组织化学方法进行HIF-1 $\alpha$ 、PPAR- $\gamma$ 染色。**结果** 肾脏创伤后1、24h HIF-1 $\alpha$ 表达增强, 分布于皮质远曲小管、肾盂旁小管、髓质小管; 6、12h表达减弱, 局限于肾盂旁小管、髓质外带小管。各组间比较差异有统计学意义( $P < 0.05$ )。PPAR- $\gamma$  1、24h呈阳性表达, 分布于髓质小管上皮细胞; 6、12h呈阴性表达, 各组间比较差异有统计学意义( $P < 0.05$ )。**结论** HIF-1 $\alpha$ 、PPAR- $\gamma$ 可能参与了肾脏创伤后缺血、缺氧、再生、修复的过程。

**关键词:** 肾脏; 创伤; 缺氧诱导因子-1 $\alpha$ ; 过氧化物酶体增殖物激活受体 $\gamma$ , 大鼠,Wistar

## Expressions of HIF-1 $\alpha$ and PPAR- $\gamma$ in renal early trauma and their protective mechanisms on the kidney

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### Abstract:

**Objective** To investigate expressions of hypoxia-inducible factor-1 $\alpha$ (HIF-1 $\alpha$ ) and peroxisome proliferator-activated receptor- $\gamma$ (PPAR- $\gamma$ ) in traumatic kidneys, and the mechanisms of kidney trauma and repair. **Methods** Rats were stricken at the skin of the renal zone by a free-fall from 45cm height to establish the traumatic rat model. Then, rats were randomly divided into 5 groups: the non-traumatic control group, and 1h, 6h, 12h and 24h post-trauma groups. Expressions of HIF-1 $\alpha$  and PPAR- $\gamma$ were detected with immunohistochemical staining. **Results** Positive expression of HIF-1 $\alpha$ was increased in 1h and 24h post-trauma groups, located in cortex distal convoluted tubules, tubules near renal calyces and medullary tubules; while it was distinctly decreased in 6h and 12h post-trauma groups, located in tubules near renal calyces and tubules at the outer zone of renal medulla. There were significant differences in expression of HIF-1 $\alpha$ among all the groups( $P < 0.05$ ). The PPAR- $\gamma$  expression was positive in tubules of renal medulla in 1h and 24h post-trauma groups( $P < 0.05$ ), however, negative in 6h and 12h post-trauma groups. **Conclusion** HIF-1 $\alpha$ and PPAR- $\gamma$  may participate in the secondary hypoxia, ischemia, regeneration and repair procedures after renal injury.

**Keywords:** Kidney; Trauma; Hypoxia inducible factor 1 $\alpha$ ; Peroxisome proliferator-activated receptor- $\gamma$ ; Rats, wistar

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