

论著

锌指转录因子Snail 1在糖尿病大鼠肾组织中的表达

方开云, 娄晶磊, 肖瑛, 石明隽, 桂华珍, 郭兵, 张国忠^Δ

贵阳医学院 病理生理学教研室, 贵州 贵阳 550004

收稿日期 2007-1-18 修回日期 2007-9-28 网络版发布日期 2008-11-19 接受日期 2007-9-28

摘要 目的: 观察锌指转录因子Snail 1在糖尿病大鼠肾组织中的表达并探讨其与糖尿病肾病(DN)发生、发展的关系。

方法: 链脲佐菌素(STZ)诱发大鼠糖尿病(DM), 分为2、4、8、12、16、20、24周以及16周A、20周A和24周A组, 其中A组动物从第13周起用胰岛素控制血糖至正常水平, 每个时点均设鼠龄匹配的正常对照组。测定各组血糖、24 h尿蛋白、血肌酐(Scr)、肾脏指数。PAS染色光镜观察肾脏病理改变。免疫组化、RT-PCR方法检测肾皮质Snail 1和纤连蛋白(FN)的蛋白及mRNA水平, Western blotting检测Snail 1蛋白表达。

结果: DM各组大鼠的血糖、24 h尿蛋白、血肌酐、肾脏指数明显高于正常对照组(P<0.05, P<0.01), A组上述指标均明显低于DM组(P<0.05, P<0.01)。Snail 1免疫组化阳性染色见于各组DM大鼠肾小管, 正常对照组未见阳性表达, A组见弱阳性表达, 并随治疗时间延长而减少。DM组肾皮质Snail 1、FN蛋白和mRNA的表达水平高于正常对照组(P<0.01), 而A组显著低于DM组(P<0.01)。Snail 1与FN mRNA的表达水平呈显著正相关(P<0.01), Snail 1蛋白表达水平与血糖、尿蛋白、血肌酐、肾脏指数亦呈正相关(P<0.01)。

结论: Snail 1基因和蛋白在DM大鼠肾组织过度表达, 提示Snail 1可能参与了DN的发生、发展机制。

关键词 锌; 转录因子Snail 1; 纤连蛋白类; 糖尿病肾病; 大鼠

分类号 R363

Expression of zinc-finger transcription factor Snail 1 in the kidney of diabetic rats

FANG Kai-yun, LOU Jing-lei, XIAO Ying, SHI Ming-juan, GUI Hua-zhen, GUO Bing, ZHANG Guo-zhong

Department of Pathophysiology, Guiyang Medical College, Guiyang 550004, China.
E-mail: gz107@163.com

Abstract

AIM: To explore the expression of Snail 1 in renal tissues of diabetic rats, and to investigate its contribution to the progression of diabetic nephropathy.
METHODS: Streptozotocin-induced diabetic rats were randomly divided into 2, 4, 8, 12, 16, 20, 24 weeks groups and 16 week A, 20 week A and 24 week A groups. A groups were treated with insulin to control blood glucose to normal level from the 13th week. Control groups were set up in age-matched time points. Blood glucose, 24 h urine protein, serum creatinine (Scr) and kidney index of rats were measured. Periodic acid-silver (PAS) staining was used to observe the renal pathological changes. The mRNA and protein expressions of Snail 1 and FN in renal cortex were detected by RT-PCR and immunohistochemical staining, respectively. Western blotting was employed to detect the expression of Snail 1 protein in the renal cortex.
RESULTS: The levels of blood glucose, Scr, kidney weight index were increased remarkably in diabetic rats as compared with those in control groups (P<0.05, P<0.01), and decreased remarkably in the insulin-treated rats as compared with those in the diabetic rats (P<0.05, P<0.01). The Snail 1 protein was not detected by immunohistochemical staining in normal renal tissues. However, strongly positive staining was observed in renal tubules of diabetic rats. A time-dependent loss of Snail 1 expression was detected in the kidney in insulin-treated rats. The Snail 1 protein and mRNA of Snail 1 and FN were significantly up-regulated in the diabetic rats as compared with those in controls (P<0.01), while down-regulated in the insulin-treated diabetic rats (P<0.01). A close positive relationship existed between the mRNA expression of Snail 1 and FN (r=0.800, P<0.01). The level of Snail 1 protein expression was positively correlated with blood glucose, urine protein, Scr, kidney index (r=0.877, 0.694, 0.522, 0.875, P<0.01).
CONCLUSION: These findings suggest that Snail 1 gene and protein expression are up-regulated in the kidney of rats with diabetes and may be

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(8434KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [参考文献](#)

服务与反馈

- ▶ [把本文推荐给朋友](#)
- ▶ [加入我的书架](#)
- ▶ [加入引用管理器](#)
- ▶ [复制索引](#)
- ▶ [Email Alert](#)
- ▶ [文章反馈](#)
- ▶ [浏览反馈信息](#)

相关信息

- ▶ [本刊中 包含“锌; 转录因子Snail 1; 纤连蛋白类; 糖尿病肾病; 大鼠” 的相关文章](#)
- ▶ [本文作者相关文章](#)

- [方开云](#)
- [娄晶磊](#)
- [肖瑛](#)
- [石明隽](#)
- [桂华珍](#)
- [郭兵](#)
- [张国忠](#)

involved in the pathogenesis of diabetic nephropathy.

Key words [Zinc](#) [Transcription factor Snail 1](#) [Fibronectins](#) [Diabetic nephropathies](#) [Rats](#)

DOI: 1000-4718

通讯作者 张国忠 zgz107@163.com