山东大学学报(医学版) 2011, 49(9) 1-5 DOI: ISSN: 1671-7554 CN: 37-1390/R

论文

贝那普利对自发性高血压大鼠糖基化终末产物形成及肾脏损伤的抑制

朱艳利1，扈丽萍1，侯训尧2，刘雪平2

山东大学附属省立医院 1. 老年心血管科； 2. 老年神经内科， 济南 250021

摘要：

目的 探讨自发性高血压大鼠肾脏AGEs-RAGE系统、信号转导系统及细胞因子水平的变化，并研究贝那普利对其的影响。方法 将24只SHR随机分为对照组(SHR组)和贝那普利组，12只Wistar京都大鼠为WKY组。SHR组和WKY组每天用等量蒸馏水灌胃1次；贝那普利组将贝那普利［10mg/(kg·d)］研成粉末，加等量蒸馏水每天灌胃1次，12周后测定肾皮质Ang II水平及24h尿蛋白，计算肾小球硬化指数；检测肾脏晚期糖基化终末产物(AGE)、VCAM-1、NF-κB 及NADPH oxidase p47phox的表达。结果 与WKY组比较，SHR组肾皮质Ang II水平及24h尿蛋白、肾小球硬化指数显著升高(P<0.01)，AGE、VCAM-1、NF-κB 及NADPH oxidase p47phox的表达显著增强(P<0.01)；与SHR组比较，贝那普利组肾皮质Ang II水平及24h尿蛋白、肾小球硬化指数显著降低(P<0.01)，AGE、VCAM-1、NF-κB 及NADPH oxidase p47phox的表达显著减弱(P<0.01)。结论 高血压肾脏氧化应激反应增强， AGEs与RAGE结合使NF-κB活化，增加VCAM、NADPH oxidase p47phox的表达，加速肾脏损害。贝那普利通过抑制氧化应激及AGEs表达，进一步抑制NF κB及生长因子的表达，改善高血压肾脏损害。

关键词： 贝那普利；高血压；糖基化终产物，高级；大鼠，自发性高血压

Inhibitory effects of benazepril on the formation of advanced glycosylation end products and kidney injury in spontaneous hypertension rats

ZHU Yan-li1, HU Li-ping1, HOU Xun-yao2, LIU Xue-ping2

1. Department of Geriatric Cardiology; 2. Department of Geriatric Neurology, Provincial Hospital Affiliated to
Shandong University, Jinan 250021, China

Abstract:

Objective To explore changes of the advanced glycosylation end products(AGEs)-receptor of the AGEs (RAGE) system, signal translation system, and related cytokines in the kidneys of spontaneous hypertension rats(SHR), and effects of benazepril on them. Methods 24 SHR were randomly divided into the benazepril (10mg/kg·d) group and the SHR group, and 12 Wistar Kyoto rats(WKY) as the WKY group. An equal amount of distilled water was intragastrically administrated once a day in the SHR and WKY groups. Pulverized benazepril(10mg/kg·d) along with the same amount of distilled water was intragastrically administrated in the benazepril group.12 weeks later, levels of cortex renins AgII and the 24h urine protein were tested and the glomerulosclerosis index(GSI) was calculated. Expressions of AGEs and vascular cell adhesion molecule-1(VCAM-1) in the kidneys were detected by immunofluorescence assay. Expressions of nuclear transcription factor(NF-κB) mRNA and triphosphopyridine nucleotide(NADPH) oxidase p47phox mRNA were measured by RT-PCR. Expression of the NF-κB protein was measured by Western blot. Results Compared with the WKY group, the levels of Ang II in the kidneys, albuminuria and GSI were significantlyhigher in the SHR group(P<0.01), while they were significantly reduced by benazepril(P<0.01). Compared with the WKY group, expressions of AGEs, VCAM-1, NF-κB and NADPH oxidase p47phox were significantly higher in the SHR group(P<0.01), while they were significantly reduced by benazepril(P<0.01). Conclusion Oxidation stress in the kidneys is increased in SHR. Combination of AGEs and RAGE can activate NFκB, increased expressions of VCAM and NADPH oxidase p47phox, and accelerate injury to kidneys. By suppressing oxidative stress and expressions of AGEs, benazepril further inhibits expressions of NF-κB and growth factor and eases injury to kidneys induced by hypertension.

Keywords: Benazepril; Hypertension; Glycosylation end products, advanced; Rats, spontaneously hypertensive

收稿日期 2011-07-08 **修回日期** **网络版发布日期**

DOI:

基金项目:

中央保健专项基金资助课题(鲁A032)

通讯作者: 刘雪平(1962-)，女，博士，主要从事神经内科疾病的研究。 E-mail：lxp6133@yahoo.com.cn

作者简介: 朱艳利(1971-)，女，博士，主要从事心血管内科疾病的研究。

作者Email:

参考文献：

本刊中的类似文章
