

doi: 10.13241/j.cnki.pmb.2014.18.022

老年高血压合并 2 型糖尿病患者血清同型半胱氨酸、血尿酸水平变化及临床意义

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摘要 目的:探讨老年高血压合并 2 型糖尿病患者血清同型半胱氨酸(Homocysteine, Hcy)、血尿酸(Serum uric acid, SUA)水平变化及其临床意义。**方法:**2012 年 9 月至 2013 年 9 月期间,我院诊治的 40 例单纯高血压和 40 例高血压合并 2 型糖尿病患者,分别作为对照组和研究组,检测两组血清 Hcy、SUA 水平。**结果:**两组患者收缩压、舒张压比较无统计学差异($P>0.05$)。研究组空腹血糖、餐后 2h 血糖、血清 Hcy、SUA 均显著高于对照组($P<0.05$)。研究组中血管并发症患者血清 Hcy、SUA 为(25.0 ± 5.0) $\mu\text{mol/L}$ 和(390.0 ± 65.0) mmol/L 显著高于无血管并发症患者(17.0 ± 4.0) $\mu\text{mol/L}$ 和(330.0 ± 55.0) mmol/L ,血管并发症患者 FBG、餐后 2h 血糖与无血管并发症患者比较无统计学差异($P>0.05$)。**结论:**高血压合并 2 型糖尿病患者血清 Hcy、SUA 异常升高,且存在慢性血管并发症患者两者水平更高,血清 Hcy、SUA 是老年高血压合并 2 型糖尿病的危险因素。

关键词:高血压;2 型糖尿病;同型半胱氨酸;尿酸

中图分类号:544.1;R587.1 文献标识码:A 文章编号:1673-6273(2014)18-3487-03

The Levels Change and Clinical Significance Research of Serum Homocysteine and Uric Acid for Old Patients with Hypertension and Type 2 Diabetes

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ABSTRACT Objective: To study the levels change and relationship of serum homocysteine (Hcy) and uric acid (UA) for old patients with hypertension and type 2 diabetes. **Methods:** The 40 patients with hypertension and 40 patients with hypertension and type 2 diabetes in our hospital during the period from Sep 2012 to Sep 2013 were regarded as the subjects of the control group and the study group. The levels of serum homocysteine and uric acid in the two groups and the relationship were measured and compared. **Results:** The systolic blood pressure, diastolic blood pressure of two groups was not statistically significant ($P>0.05$). In study group, fasting blood glucose, 2h postprandial blood glucose, serum Hcy, SUA were significantly higher than those in the control group ($P<0.05$). To observe the vascular complications in patients serum Hcy, SUA were (25.0 ± 5.0) $\mu\text{mol/L}$ and (390.0 ± 65.0) mmol/L significantly higher than that (17.0 ± 4.0) $\mu\text{mol/L}$ and (330.0 ± 55.0) mmol/L of patients without vascular complications, there were no statistical differences in 2h glucose, FBG postprandial vascular complications in patients with and without vascular complications in patients with ($P>0.05$). **Conclusion:** The serum homocysteine and uric acid are the risk factors for old patients with hypertension and type 2 diabetes.

Key words: Hypertension; Type 2 diabetes; Homocysteine; Uric acid

Chinese Library Classification(CLC): 544.1; R587.1 **Document code:** A

Article ID: 1673-6273(2014)18-3487-03

前言

高血压、糖尿病是威胁老年人身体健康的常见疾病,近年来患病数逐渐升高^[1]。且高血压患者常常并发糖尿病,糖尿病患者也容易并发高血压,两者相互影响,加重疾病的发展。由于两种疾病均可对血管产生慢性损害,常被称为同源性疾病,高血压合并 2 型糖尿病可能引发严重心血管疾病,甚至危及生命^[2]。清楚了解高血压合并 2 型糖尿病的危险因素,对于 2 型糖尿病二级预防和疾病诊断具有重要意义。本研究中,单纯高血压与

老年高血压合并 2 型糖尿病患者的血清同型半胱氨酸(homocysteine, Hcy)、血尿酸(uric acid, UA)水平,并探讨其临床意义,有助于老年高血压合并 2 型糖尿病患者的防治,现报道如下,以供临床参考。

1 资料和方法

1.1 一般资料

选择 2012 年 9 月至 2013 年 9 月期间,我院诊治的 40 例高血压合并 2 型糖尿病患者作为研究组,所有患者均符合 WHO 关于高血压和 / 或 2 型糖尿病的诊断标准^[3],并排除严重心力衰竭、心肌梗死、心律失常等疾病患者。研究组:男性患者 22 例、女性患者 18 例,年龄 65.5~86.0,平均年龄(67.0 ± 5.5)

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(收稿日期:2013-11-25 接受日期:2013-12-22)

岁。同期诊治的 40 例单纯高血压患者座位对照组, 男性患者 23 例、女性患者 17 例, 年龄 66.0~87.0, 平均年龄(68.0± 6.0) 岁。两组性别、年龄比较, 差异无统计学意义($P>0.05$), 具有可比性。

1.2 方法

所有受试者清晨空腹抽取肘静脉血约 5 mL, 3000 r/min 离心分离血清, 应用酶联免疫吸附法检测两组对血清 Hcy 水平, 日立 7600 型全自动生化分析仪, 检测 UA 水平, 空腹血糖、餐后 2h 血糖水平。并检测两组静息状态血压。试剂盒分别购自北京利德曼公司和德国罗氏公司。根据患者有无糖尿病血管并发症将观察组患者分为两组, 血管并发症包括: 冠心病、脑血管病、糖尿病肾病、视网膜病变。比较各组血清 Hcy、SUA、血糖、

空腹血糖、餐后 2 h 血糖及血压水平。

1.3 统计学方法

数据采用 SPSS18.0 统计学软件进行分析和处理, 计量资料以($\bar{x} \pm s$)表示, 经 Kolmogorov-Smirnow Normality 检验, 方差齐者, 采用 t 检验, $P<0.05$, 差异有统计学意义。

2 结果

2.1 观察组与对照组观察指标比较

两组患者收缩压、舒张压比较无统计学差异($P>0.05$)。观察组空腹血糖、餐后 2 h 血糖、血清 Hcy、SUA 均显著高于对照组($P<0.05$)。见表 1

表 1 研究组与对照组观察指标比较($\bar{x} \pm s$)

Table 1 Comparison of observed indicator of two groups($\bar{x} \pm s$)

组别 Groups	n	Hcy ($\mu\text{mol/L}$)	UA (mmol/L)	收缩压 systolic pressure (mmHg)	收缩压 systolic pressure (mmHg)	空腹血糖 fasting blood-glucose (mmol/L)	餐后 2h 血糖 2h postprandial blood glucose (mmol/L)
研究组 Study group	40	20.4± 5.3	350.8± 65.3	154.3± 25.7	96.0± 12.2	6.3± 0.4	13.0± 2.5
对照组 Control group	40	13.5± 4.7	278.1± 55.2	150.8± 25.7	95.0± 11.6	4.5± 0.6	6.7± 0.5
t		2.845	3.593	0.081	0.043	2.287	2.315
P		<0.05	<0.01	>0.05	>0.05	<0.05	<0.05

2.2 观察组中有无血管并发症患者观察指标比较

观察组患者合并冠心病 5 例, 脑梗死 2 例, 糖尿病肾病 3 例, 糖尿病视网膜病变患者 2 例。研究组中血管并发症患者血清 Hcy、SUA 为(25.0± 5.0) $\mu\text{mol/L}$ 和(390.0± 65.0) mmol/L 显

著高于无血管并发症患者(17.0± 4.0) $\mu\text{mol/L}$ 和(330.0± 55.0) mmol/L , 血管并发症患者 FBG、餐后 2h 血糖与无血管并发症患者比较无统计学差异($P>0.05$)。见表 2。

表 2 观察组中有无血管并发症患者观察指标比较($\bar{x} \pm s$)

Table 2 Comparison of observed indicator of observation group with and without vascular complication($\bar{x} \pm s$)

组别 Groups	n	Hcy ($\mu\text{mol/L}$)	UA (mmol/L)	收缩压 systolic pressure (mmHg)	舒张压 diastolic pressure (mmHg)	空腹血糖 fasting blood-glucose (mmol/L)	餐后 2h 血糖 2h postprandial blood glucose (mmol/L)
有血管并发症 with vascular complication	12	25.0± 5.0	390.0± 65.0	155.8± 27.2	96.4± 12.1	6.5± 0.7	13.2± 2.1
无血管并发症 without vascular complication	28	17.0± 4.0	330.0± 55.0	153.6± 23.8	95.7± 12.3	6.2± 0.2	12.7± 1.7
t		2.832	3.127	0.075	0.048	0.087	0.105
P		< 0.05	< 0.05	> 0.05	> 0.05	> 0.05	> 0.05

3 讨论

高血压是临床上最常见的慢性疾病, 也是多种心脑血管疾病的重要发病因素和病因^[4]。目前, 我国高血压患病率已上升至 30%, 严重影响人们健康^[5]。尤其是老年人, 机体各项机能下降,

常同时患有多种慢性疾病, 给临床治疗带来了困难。目前研究发现^[6], 高血压与 2 型糖尿病有密切的关系, 两种疾病均可对血管产生慢性损害, 常被称为同源性疾病, 高血压合并 2 型糖尿病可能引发严重心血管疾病, 甚至危及生命。近年来研究发现^[7-9], 高同型半胱氨酸血症和高尿酸血症是动脉粥样硬化的危险因素

素,两者可能参与动脉硬化病变,在多种心脑血管疾病的发病中起到重要作用,同时还可能参与胰岛素抵抗,成为胰岛素抵抗综合征的病因之一。

Hcy 作为含硫氨基酸,是半胱氨酸、蛋氨酸的重要中间代谢产物^[10]。据报道,Hcy 升高时,与低密度脂蛋白结合,形成复合体,继而吞噬细胞吞噬,形成泡沫细胞;Hcy 能够加速血管平滑肌细胞 DNA 合成,刺激血管平滑肌持续收缩,造成血管内皮细胞的损伤,继而造成血压升高、血管重建^[11-14];Hcy 急速升高,内皮细胞出现损伤,容易在血流中形成血栓;Hcy 升高时,血管内皮细胞炎性因子,尤其是肿瘤坏死因子受体上调,最终导致细胞凋亡。本研究中,与对照组相比,观察组 Hcy 水平明显升高,表明高血压合并 2 型糖尿病患者 Hcy 水平明显升高,Hcy 可能是老年高血压合并 2 型糖尿病的危险因素,推测高血压合并 2 型糖尿病患者 Hcy 水平升高可能与胰岛素缺乏有关^[15]。

SUA 作为嘌呤代谢终产物,是人体主要的内源性、水溶性的氧化剂。有报道称,高尿酸血症与胰岛素抵抗综合征,有密切的相关性^[16]。高尿酸血症患者的尿酸盐结晶于动脉壁沉淀,继而损伤动脉内膜;高血压患者常累及肾脏,肾小球动脉发生硬化,肾血流量减少,继而尿酸排泄量减少,容易形成血尿酸增加,最终导致高尿酸血症^[17-19]。本研究中观察组 UA 水平明显升高,其原因可能使 2 型糖尿病患者肾脏近曲小管对尿酸的重吸收被抑制,导致尿酸排泄量增多,继而患者出现系统性代谢紊乱,尿酸清除率相应降低,血尿酸水平也相应升高,另外,高尿酸血症会损害胰腺细胞,患者容易并发糖尿病^[20]。

本研究还在观察组中有无血管并发症进行了进一步的观察,结果显示观察组中血管并发症患者血清 Hcy、SUA 显著高于无血管并发症患者,血管并发症患者 FBG、餐后 2 h 血糖与无血管并发症患者比较无统计学差异。这表明血清 Hcy、SUA 对于预测血管并发症有重要的价值。目前,已有大量文献证实高血压、2 型糖尿病患者的 Hcy、UA 水平明显升高,也可以反映患者病情的严重程度^[21]。但本研究结果表明,做好血清 Hcy、UA 的检测,能够有效预防老年高血压、糖尿病,以及继发性心血管疾病的发生。这为高血压、2 型糖尿病患者疾病的发生、发展提供了理论依据,也为高血压合并 2 型糖尿病的防治工作,提供了针对性的临床预防作用。

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