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老年急性冠脉综合征患者血尿酸与血脂、HCY 及 hs-CRP 水平的关系研究 *

崔吉宏¹ 徐海¹ 张金蓉² 付东伟¹ 谢君杰¹

(1 重庆三峡中心医院老年医学科 重庆 404000; 2 重庆三峡中心医院重症医学科 重庆 404000)

摘要 目的:研究老年急性冠脉综合征(ACS)患者血尿酸(UA)与血脂、同型半胱氨酸(HCY)及超敏 C 反应蛋白(hs-CRP)水平的关系。**方法:**选择从 2014 年 2 月到 2017 年 9 月在重庆三峡中心医院接受治疗的老年 ACS 患者 59 例作为研究对象。急性心肌梗死(AMI)患者 32 例,即为 AMI 组;不稳定型心绞痛(UAP)患者 27 例,即为 UAP 组。另选同期 30 例在我院接受体检的健康志愿者作为对照组,对比各组 UA、HCY、hs-CRP 水平以及血脂水平,并分析患者 UA 与血脂、HCY 及 hs-CRP 水平的相关性。**结果:**AMI 组和 UAP 组的 UA、HCY 及 hs-CRP 水平均高于对照组,且 AMI 组又高于 UAP 组($P<0.05$)。AMI 组和 UAP 组的总胆固醇(TC)、甘油三酯(TG)、低密度脂蛋白(LDL)水平均高于对照组,AMI 组又高于 UAP 组($P<0.05$);AMI 组和 UAP 组的高密度脂蛋白(HDL)水平低于对照组,且 AMI 组又低于 UAP 组($P<0.05$)。根据 Spearman 法分析相关性可知,患者 UA 与 HCY、hs-CRP、TC、TG 及 LDL 均呈正相关,与 HDL 呈负相关($P<0.05$)。**结论:**老年 ACS 患者 UA、HCY、hs-CRP、TC、TG 及 LDL 水平均较高,HDL 水平较低,且 UA 与血脂、HCY 以及 hs-CRP 均具有较好的相关性,临床可尝试将其作为重点监测靶点,从而应用于 ACS 患者的诊治。

关键词:老年;急性冠脉综合征;血尿酸;血脂;同型半胱氨酸;超敏 C 反应蛋白;相关性

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Relationship Research between Blood Uric Acid and Blood Lipid, HCY and hs-CRP Levels in Elderly Patients with Acute Coronary Syndrome*

CUI Ji-hong¹, XU Hai¹, ZHANG Jin-rong², FU Dong-wei¹, XIE Jun-jie¹

(1 Department of Geriatric Medicine, Chongqing Three Gorges Central Hospital, Chongqing, 404000, China;

2 Department of Intensive Medicine, Chongqing Three Gorges Central Hospital, Chongqing, 404000, China)

ABSTRACT Objective: To study the relationship between blood uric acid (UA) and blood lipid, homocysteine (HCY) and hypersensitivity C reactive protein (hs-CRP) in elderly patients with acute coronary syndrome (ACS). **Methods:** 59 elderly patients with ACS who were treated in Chongqing Three Gorges Central Hospital from February 2014 to September 2017 were selected as the subjects, 32 patients with acute myocardial infarction (AMI) were recorded as AMI group, 27 patients with unstable angina pectoris (UAP) were recorded as UAP group. 30 volunteers who were received physical examination in our hospital at the same period were selected as the control group. The levels of UA, HCY and hs-CRP and blood lipids in each group were compared, and the correlation between UA and levels of blood lipids, HCY and hs-CRP was analyzed. **Results:** The levels of UA, HCY and hs-CRP in AMI group and UAP group were significantly higher than those in the control group, and the AMI group was higher than that of the UAP group ($P<0.05$). The levels of total cholesterol (TC), triglyceride (TG) and low density lipoprotein (LDL) in AMI group and UAP group were significantly higher than those in the control group, and the AMI group was higher than that of the UAP group ($P<0.05$). The level of high density lipoprotein (HDL) in AMI group and UAP group was lower than that of the control group, and AMI group was lower than that of the UAP group ($P<0.05$). According to the analysis of the correlation of Spearman, UA of patient was positively correlated with HCY, hs-CRP, TC, TG and LDL, and which was negatively correlated with HDL($P<0.05$). **Conclusion:** The levels of UA, HCY, hs-CRP, TC, TG and LDL in the elderly patients with ACS are all higher, the level of HDL was lower, and UA has good correlation with blood lipid, HCY and hs-CRP. It can be tried as a key monitoring target in clinical trials, so it can be applied to the diagnosis and treatment of patients with ACS.

Key words: Elderly; Acute coronary syndrome; Blood uric acid; Blood lipid; Homocysteine; Hypersensitivity C reactive protein; Relevance

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前言

在心内科临床,急性冠脉综合征(acute coronary syndrome, ACS)是病理基础主要是以冠脉粥样硬化型斑块发生破溃为,

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作者简介:崔吉宏(1981-),男,本科,主治医师,从事老年医学方面的研究, E-mail: dpmkwv@163.com

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进而形成的不完全亦或是完全型闭塞性血栓,ACS也是一组由上述因素引起的临床综合征,其主要包含急性心肌梗死(AMI)、不稳定型心绞痛(UAP)以及心源性猝死等情况,对患者的预后具有不良影响^[1-3]。近年来有报道指出,炎症作用和血脂异常属于动脉粥样硬化型病变进展过程的一个重要机制,且尿酸(uric acid,UA)也是冠脉发生粥样硬化型病变的重要影响因素^[4-6]。但此类指标与老年ACS患者存在何种关联,仍有待进一步研究探索。同型半胱氨酸(homocysteine,Hcy)是与心脑血管疾病发生联系紧密的一个指标,其有助于血小板的聚集和黏附,并可诱发血栓,对于ACS患者而言是一个较好的指示性生化标记物^[7,8]。超敏C反应蛋白(hypersensitivity C reactive protein,hs-CRP)是典型的促炎因子,其与动脉粥样硬化的形成具有紧密的联系,同时也是多种心脑血管疾病的预测指标^[9,10]。本研究通过分析ACS患者UA与血脂、Hcy及hs-CRP水平的关系,旨在为临床上ACS患者的诊治提供监测指标的选择和科学的数据支持,现报道如下。

1 资料和方法

1.1 一般资料

选择从2014年2月到2017年9月在重庆三峡中心医院接受治疗的59例老年ACS患者作为研究对象。纳入标准:(1)患者均满足世界卫生组织关于ACS的有关诊断标准^[11];(2)年龄 ≥ 60 岁;(3)初次就诊者;(4)患者或其家属知情本研究并签署了同意书。排除标准:(1)有血液疾病或内分泌疾病者;(2)合并肝肾等功能性不全者;(3)有恶性肿瘤者。入选患者中,男34例,女25例;年龄60-87岁,平均(73.68 $\pm$ 1.62)岁。病程3个月-5年,平均(2.18 $\pm$ 0.52)年。体质量22-28 kg/m²,平均(25.28 $\pm$ 1.94)kg/m²。AMI患者32例,即为AMI组;UAP患者27例,即为UAP组。另选同期在我院接受体检的健康志愿者30例作为

对照组,男19例,女11例;年龄61-85岁,平均(72.86 $\pm$ 1.48)岁。ACS患者与对照组志愿者性别、年龄比较无统计学差异($P>0.05$),均衡可比。本次研究已经获得医院伦理委员会的评审通过。

1.2 研究方法

在入组后当日分别抽取所有受试者晨间空腹静脉血约4 mL,以3000 r/min的速率离心15 min后分离出血清,通过贝克曼AU480型全自动生化分析仪测定UA水平,以免免疫比浊法测定hs-CRP水平,通过循环酶法测定Hcy和血脂水平,其中血脂主要包括高密度脂蛋白(high density lipoprotein,HDL)、总胆固醇(total cholesterol,TC)、甘油三酯(triglyceride,TG)、低密度脂蛋白(low density lipoprotein,LDL),有关试剂盒均购自武汉博士德生物工程有限公司,具体操作步骤根据试剂盒说明书进行。

1.3 观察指标

对比各组UA、Hcy及hs-CRP水平以及血脂水平,并分析老年ACS患者UA与血脂、Hcy及hs-CRP水平的相关性。

1.4 统计学方法

通过SPSS21.0统计软件处理数据,计数资料用[n(%)]表示,实施 χ^2 检验。UA、Hcy及hs-CRP水平、血脂水平等计量资料用($\bar{x} \pm s$)表示,实施t检验,多组比较采用方差分析,计算F值。UA与Hcy、hs-CRP、血脂指标的相关性分析通过Spearman法实施处理,检验标准设置为 $\alpha=0.05$ 。

2 结果

2.1 各组UA、Hcy及hs-CRP水平的对比

各组的UA、Hcy及hs-CRP水平相比差异均有统计学意义($P<0.05$)。AMI组和UAP组的UA、Hcy及hs-CRP水平均高于对照组,且AMI组又高于UAP组($P<0.05$),见表1。

表1 各组UA、Hcy及hs-CRP水平的对比($\bar{x} \pm s$)

Table 1 Comparison of UA, Hcy and hs-CRP levels in each groups($\bar{x} \pm s$)

Groups	n	UA($\mu\text{mol/L}$)	Hcy($\mu\text{mol/L}$)	hs-CRP(mg/dL)
AMI group	32	403.98 $\pm$ 56.77* Δ	19.06 $\pm$ 3.23* Δ	1.54 $\pm$ 0.33* Δ
UAP group	27	347.24 $\pm$ 69.82 Δ	15.47 $\pm$ 4.12 Δ	0.88 $\pm$ 0.15 Δ
Control group	30	233.18 $\pm$ 60.59	10.23 $\pm$ 3.09	0.23 $\pm$ 0.10
F	-	23.697	8.724	3.587
P	-	0.000	0.000	0.001

Note: comparison with UAP group, * $P<0.05$; comparison with control group, $\Delta P<0.05$.

2.2 各组的血脂水平对比

各组的血脂水平相比差异均有统计学意义($P<0.05$)。AMI组和UAP组的TC、TG、及LDL水平均高于对照组,AMI组又高于UAP组($P<0.05$);AMI组和UAP组的HDL水平低于对照组,且AMI组又低于UAP组($P<0.05$),见表2。

2.3 老年ACS患者UA与Hcy、hs-CRP、血脂水平的相关性分析

根据Spearman法分析结果显示老年ACS患者UA与Hcy、hs-CRP、TC、TG及LDL均呈正相关,与HDL呈负相关($P<0.05$),见表3。

3 讨论

临床上,ACS主要是指机体的冠脉内粥样硬化型斑块发生破裂而激发的因血栓亦或是血管痉挛引起的(亚)急性心肌梗死的各类临床综合征^[12,13]。ACS是冠心病中较为严重的类别,其可受到多种外部因素的影响,并与斑块的破裂、炎性反应、血小板活化及血栓的形成紧密相关^[14-16]。据临床数据统计,近年来ACS的发病率一直较高,并且发病的年龄也表现出年轻化的趋势^[17]。有报道指出,ACS的发病机制主要可能与体内的血脂、Hcy异常以及微炎症引起的hs-CRP水平上升有关

^[18-20]。而近年来的报道表明,UA 水平的升高容易引起冠脉的粥样硬化,进而对 ACS 的发病具有一定的影响作用^[21]。因此,分析老年 ACS 患者的 UA 与其血脂、HCY 及 hs-CRP 之间的关系,对于明确 ACS 的发病机制显得十分必要。

表 2 各组的血脂水平对比(mmol/L, $\bar{x} \pm s$)

Table 2 Comparison of blood lipids level in each group(mmol/L, $\bar{x} \pm s$)

Groups	n	TC	TG	LDL	HDL
AMI group	32	4.49± 0.35* [△]	2.45± 0.88* [△]	2.59± 0.63* [△]	1.05± 0.07* [△]
UAP group	27	4.21± 0.27 [△]	1.91± 0.69 [△]	2.30± 0.42 [△]	1.09± 0.05 [△]
Control group	30	3.88± 0.33	1.22± 0.35	2.11± 0.40	1.18± 0.08
F	-	5.317	3.624	3.421	3.215
P	-	0.000	0.001	0.002	0.004

Note: comparison with UAP group, *P<0.05; comparison with control group, [△]P<0.05.

表 3 患者 UA 与血脂、HCY 及 hs-CRP 水平的相关性分析

Table 3 Correlation analysis between UA and blood lipids, HCY and hs-CRP levels in patients

Indexes	UA	
	r	P
HCY	0.633	0.000
hs-CRP	0.594	0.000
TC	0.617	0.000
TG	0.596	0.000
LDL	0.602	0.000
HDL	-0.587	0.001

本研究结果显示,AMI 组和 UAP 组的 UA、HCY 及 hs-CRP 水平均高于对照组,且 AMI 组又高于 UAP 组(P<0.05),这提示了 ACS 患者机体的 UA、HCY 及 hs-CRP 水平明显上升,且病情程度越严重,此种上升的情况也越明显。分析原因,可能是 UA、HCY 及 hs-CRP 均参与了 ACS 患者机体的动脉粥样硬化以及血栓形成等病变过程,进而导致上述指标水平明显升高。UA 是机体中核酸内嘌呤代谢而形成的终末性产物,其与多类心血管疾病均有较大联系,其中 ACS 患者机体的最大氧摄取量下降,致使氧代谢受损,并使无氧酵解增多,从而引起 UA 水平的上升^[22,23]。同时,ACS 患者机体中三磷酸腺苷的产生减少致使腺嘌呤发生降解而不断产生 UA,最终使得患者机体的 UA 水平不断上升。HCY 是一类含硫型非必需氨基酸,其极易发生氧化,可导致血管内皮细胞的损伤,并诱导机体的炎症反应,进而强化血小板自身的聚集及黏附,最终引起血栓,随着 ACS 患者病情的加剧,HCY 的水平也逐渐升高,并使血栓的形成增多,对患者的危害较大,因此临床上应控制 ACS 患者的 HCY 过度升高^[24,25]。此外,AMI 组和 UAP 组的 TC、TG、LDL 水平均较对照组升高,AMI 组又高于 UAP 组,HDL 水平较对照组降低,且 AMI 组又低于 UAP 组(P<0.05),这提示了 ACS 患者的血脂指标明显异常,且病情严重程度越重,血脂异常水平越明显。分析原因,主要可能与 TC、TG、LDL 及 HDL 等血脂指标的异常诱发了动脉粥样硬化斑块的产生,进而反映了 ACS 患者的实际病情等因素有关^[26,27]。有报道证实^[28],TC 及 LDL 升高是导致冠心病的危险因素,而 HDL 水平的上升能够预防机体内动脉粥样硬化的形成。因此,监测上述血脂指标,

有助于更好地掌握老年 ACS 患者的病情。最后,本研究根据 Spearman 法分析相关性可知,患者 UA 与 HCY、hs-CRP、TC、TG 及 LDL 均呈正相关,与 HDL 呈负相关(P<0.05),这提示了老年 ACS 患者的 UA 与 HCY、hs-CRP 及血脂指标均联系紧密。原因可能在于老年 ACS 患者机体内 UA 水平的上升导致低密度脂蛋白型胆固醇发生氧化,使血脂发生过氧化,并与氧自由基共同参与了炎症反应,从而激活了血小板及凝血过程,进而致使血栓的形成和动脉粥样硬化的进程加剧^[29,30]。

综上所述,老年 ACS 患者的 UA 与血脂、HCY 及 hs-CRP 水平联系紧密,主要表现在 UA 与 HCY、hs-CRP、TC、TG 及 LDL 均呈正相关,与 HDL 呈负相关。临床上可通过监测 UA、HCY、hs-CRP 及血脂指标而充分掌握患者病情,从而有助于辅助 ACS 疾病的诊治,值得引起重视。

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