

# 冠心病患者血清尿酸、高敏 C 反应蛋白、纤维蛋白原水平变化的临床研究

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**摘要** 目的 观察冠心病患者血清中尿酸、高敏 C 反应蛋白、纤维蛋白原水平的变化。方法 选取 2010 年 11 月至 2011 年 11 月于我院就诊的 68 例冠心病患者(稳定型心绞痛 21 例,不稳定型心绞痛 24 例,急性心肌梗死 13 例)作为研究对象,并选取同期于我院体检中心体检的 62 例健康人为对照组,检测受试者血清中尿酸、高敏 C 反应蛋白、纤维蛋白原的水平。结果 研究组患者血清中 UA、CRP 和 FBG 水平显著高于对照组( $P<0.05$ )。与稳定型心绞痛组比,不稳定型心绞痛的 CRP 水平增高( $5.34 \pm 1.98$  mg/L vs.  $11.36 \pm 2.73$  mg/L,  $P<0.05$ ),急性心肌梗死组的 UA ( $345.63 \pm 86.4$   $\mu$ mol/L vs.  $493.76 \pm 101.2$   $\mu$ mol/L,  $P<0.05$ )、CRP ( $5.34 \pm 1.98$  mg/L vs.  $21.3 \pm 2.24$  mg/L,  $P<0.05$ )和 FBG( $3.86 \pm 1.34$  g/L vs.  $6.85 \pm 2.36$  g/L,  $P<0.05$ )水平显著增高,与不稳定型心绞痛组比,急性心肌梗死组的 UA( $378.91 \pm 89.7$   $\mu$ mol/L vs.  $493.76 \pm 101.2$   $\mu$ mol/L,  $P<0.05$ )、CRP( $11.36 \pm 2.73$  mg/L vs.  $21.3 \pm 2.24$  mg/L,  $P<0.05$ )和 FBG( $4.27 \pm 2.08$  g/L vs.  $6.85 \pm 2.36$  g/L,  $P<0.05$ )水平显著增高( $P<0.05$ )。结论 冠心病患者血清中尿酸、高敏 C 反应蛋白和纤维蛋白原的水平升高,3 个指标可用于评估治疗效果和预后。

**关键词** 冠心病 尿酸 高敏 C 反应蛋白 纤维蛋白原

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## Clinical Analysis of Serum Uric Acid, High Sensitivity C Reactive Protein and Fibrinogen in Patients with Coronary Heart Disease

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**ABSTRACT Objective:** To investigate the clinical significance of serum uric acid, high sensitivity C reactive protein and fibrinogen in patients with coronary heart disease. **Methods:** 68 coronary heart disease patients who were treated in our hospital from Nov, 2010 to Nov, 2011 were enrolled in our research: 21 stable angina pectoris, 24 unstable angina pectoris and 13 acute myocardial infarction. And 68 normal persons who received physical examination in our hospital in the same time were also selected in this research as control. Serum uric acid, high sensitivity C reactive protein and fibrinogen of the patients and control were detected. **Results:** Compared with control, serum uric acid, high sensitivity C reactive protein and fibrinogen in patients with coronary heart disease were significantly higher than control ( $P<0.05$ ). Compared with stable angina pectoris, hs-CRP were much higher in unstable angina pectoris patients ( $5.34 \pm 1.98$  mg/L vs.  $11.36 \pm 2.73$  mg/L,  $P<0.05$ ), UA ( $345.63 \pm 86.4$   $\mu$ mol/L vs.  $493.76 \pm 101.2$   $\mu$ mol/L,  $P<0.05$ ), CRP ( $5.34 \pm 1.98$  mg/L vs.  $21.3 \pm 2.24$  mg/L,  $P<0.05$ ) and FBG ( $3.86 \pm 1.34$  g/L vs.  $6.85 \pm 2.36$  g/L,  $P<0.05$ ) were higher in acute myocardial infarction patients. Compared with unstable angina pectoris, UA ( $378.91 \pm 89.7$   $\mu$ mol/L vs.  $493.76 \pm 101.2$   $\mu$ mol/L,  $P<0.05$ ), CRP ( $11.36 \pm 2.73$  mg/L vs.  $21.3 \pm 2.24$  mg/L,  $P<0.05$ ) and FBG ( $4.27 \pm 2.08$  g/L vs.  $6.85 \pm 2.36$  g/L,  $P<0.05$ ) were significantly higher in acute myocardial infarction patients. **Conclusion:** Serum levels of uric acid, high sensitivity C reactive protein and fibrinogen in coronary heart disease were elevated, and these three markers were closely related to treatment of coronary heart disease.

**Key words:** Coronary heart disease; Uric acid; High sensitivity C reactive protein; Fibrinogen

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### 前言

冠心病(Coronary Heart Disease, CHD)是常见的心血管系统疾病,发病率逐年增高,且有年轻化趋势。冠状动脉粥样硬化对机体的代谢可产生不利影响,反应在生化指标的异常<sup>[1,2]</sup>。本研究旨在观察冠心病患者血清中尿酸、超敏 C 反应蛋白、纤维蛋白原的变化,探讨这些指标与冠心病的关系。

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### 1 材料与方

#### 1.1 临床资料

选取 2010 年 11 月至 2011 年 11 月于我院就诊的 68 例冠心病患者,其中男性 36 例,女性 32 例;年龄 42-78 岁,平均 56.4 岁。稳定型心绞痛(Stable Angina Pectoris, SAP)21 例,不稳定型心绞痛(Unstable Angina Pectoris, UAP)24 例,急性心肌梗死(Acute Myocardial infarction, AMI)13 例,入选患者排除心脑血管等其他系统性疾病。选取同期于我院体检中心体检的 62 例健康人作为对照组,其中男性 32 例,女性 30 例,年龄 54.3

岁,对照组患者无急性炎症、肿瘤和全身系统性疾病,各项检查指标均无异常。研究组和对照组患者的年龄、性别构成比无明显差异,资料具有可比性。

## 1.2 方法

受试者均于早晨取空腹静脉血 2 mL,标本采集后立即离心取上清。全自动生化分析仪检测所有标本中的尿酸(Uric Acid, UA)和超敏 C 反应蛋白(High Sensitivity-C Reactive Protein, hs-CRP)的水平,比浊法检查所有标本中纤维蛋白原(Fibrinogen, FBG)的水平。

## 1.3 统计学处理

采用 SPSS14.0 对数据进行统计分析,计量资料采用“均数± 方差”表示,  $P < 0.05$  具有统计学意义,主要的统计学方法为单因素方差分析。

## 2 结果

### 2.1 2 组患者血清中 UA、CRP 和 FBG 水平的对比

研究组和对照组患者血清中 UA、CRP 和 FBG 水平的对比如表 1 所示,研究组患者血清中 UA、CRP 和 FBG 水平显著高于对照组( $P < 0.05$ )。

表 1 研究组和对照组患者血清中 UA、CRP 和 FBG 的对比(均数± 方差)  
Table 1 Comparison of serum levels of UA, CRP and FBG in 2 groups(Mean± SD)

组别(Group)	例数(Cases)	尿酸(UA, $\mu\text{mol/L}$ )	超敏 C 反应蛋白(hs-CRP, mg/L)	纤维蛋白原(FBG, g/L)
对照组(Control)	62	295.28 ± 69.37	4.89 ± 1.36	3.17 ± 0.26
研究组(Research)	68	482.67 ± 79.36*	17.38 ± 5.72*	4.98 ± 0.72*

注:† 检验,与对照组比。

Note: \* $P < 0.05$ , t-test, compared with control, \* $P < 0.05$ .

### 2.2 不同类型冠心病患者血清中 UA、CRP 和 FBG 水平的对比

稳定型、不稳定型心绞痛和急性心肌梗死患者血清中 UA、CRP 和 FBG 水平的对比如表 2 所示,与稳定型心绞痛组比,不稳定型心绞痛的 CRP 水平增高(5.34 ± 1.98 mg/L vs. 11.36 ± 2.73 mg/L,  $P < 0.05$ ),急性心肌梗死组的 UA (345.63 ± 86.4  $\mu\text{mol/L}$  vs. 493.76 ± 101.2  $\mu\text{mol/L}$ ,  $P < 0.05$ )、CRP (5.34 ± 1.98

mg/L vs. 21.3 ± 2.24 mg/L,  $P < 0.05$ ) 和 FBG (3.86 ± 1.34 g/L vs. 6.85 ± 2.36 g/L,  $P < 0.05$ ) 水平显著增高,与不稳定型心绞痛组比,急性心肌梗死组的 UA (378.91 ± 89.7  $\mu\text{mol/L}$  vs. 493.76 ± 101.2  $\mu\text{mol/L}$ ,  $P < 0.05$ )、CRP (11.36 ± 2.73 mg/L vs. 21.3 ± 2.24 mg/L,  $P < 0.05$ ) 和 FBG (4.27 ± 2.08 g/L vs. 6.85 ± 2.36 g/L,  $P < 0.05$ ) 水平显著增高( $P < 0.05$ )。

表 2 不同类型冠心病患者血清中 UA、CRP 和 FBG 的水平对比(均数± 方差)  
Table 2 Serum UA, CRP and FRG in 3 types of coronary heart disease patients(Mean± SD)

组别(Group)	例数(Cases)	尿酸(UA, $\mu\text{mol/L}$ )	超敏 C 反应蛋白(Hs-CRP, mg/L)	纤维蛋白原(FBG, g/L)
稳定型心绞痛(SAP)	21	345.63 ± 86.4	5.34 ± 1.98	3.86 ± 1.34
不稳定型心绞痛(UAP)	24	378.91 ± 89.7	11.36 ± 2.73*	4.27 ± 2.08
急性心肌梗死(AMI)	13	493.76 ± 101.2*&	21.3 ± 2.24*&	6.85 ± 2.36*&

注:† 检验,与稳定型心绞痛组比,\* $P < 0.05$ ,与不稳定型心绞痛组比, & $P < 0.05$ 。

Note: t-test, compared with SAP, \* $P < 0.05$ , compared with UAP, & $P < 0.05$ .

## 3 讨论

尿酸是体内嘌呤类物质的代谢产物,循环系统中尿酸水平的增加可诱发冠心病,但促进冠心病的机理业内存在有以下几种说法:1)高水平的尿酸可促进低密度脂蛋白氧化和脂质过氧化;2)尿酸在氧自由基的协助下,参与炎症反应;3)尿酸促进血小板的粘附和聚集;4)尿酸盐结晶可损伤动脉内膜<sup>[3-9]</sup>。本课题结果显示冠心病血清中尿酸水平显著高于对照组,提示尿酸参与了冠心病的发生过程。与夏鸿剑<sup>[4]</sup>等人结果一致。本课题得到稳定和与不稳定型心绞痛组比,急性心肌梗死组的尿酸水平显著升高。与于圣永<sup>[10]</sup>等人认为尿酸水平的增加与冠心病活动性及预后密切相关的结论一致。

超敏 C 反应蛋白与炎症尤其是非特异性炎症密切相关,是非特异性炎症反应中非常灵敏的一种标志物<sup>[11,12]</sup>。如前文提到冠心病患者体内尿酸水平较高,容易形成结晶盐析出沉积于肾脏、关节等结缔组织,进而激发和促进炎症反应,另外异常脂

血症中各类有害脂类沉积于血管内皮表面造成血管内皮细胞损伤,两个方面引起冠心病超敏 C 反应蛋白水平升高,本课题结果也显示冠心病患者体内的超敏 C 反应蛋白水平显著高于对照组。同时升高的超敏 C 反应蛋白又可激活炎症细胞,损伤血管,诱发血管痉挛和使得血脂代谢进一步异常<sup>[13]</sup>,本课题显示急性心肌梗死的病患超敏 C 反应蛋白水平高于稳定和与不稳定型心绞痛,也进一步验证了超敏 C 反应蛋白与心肌组织的损伤程度和急性冠脉综合症发生关系密切<sup>[13-17]</sup>,同时提示高水平超敏 C 反应蛋白冠心病病患较低水平的预后较差。

纤维蛋白原是一种凝血因子,在肝细胞合成,可促进血小板和红细胞的聚集,增加血液粘稠度,在凝血途径中促进血凝块和血栓的形成,在异常病理情况下破坏心血管系统,升高的幅度与冠心病的严重程度紧密相关<sup>[18]</sup>。本组结果显示冠心病患者血清中纤维蛋白原水平显著升高,提示病患体内存在高凝状态,血凝粘滞度增高。急性心肌梗死患者的纤维蛋白原水平高于稳定和与不稳定型心绞痛病患,提示冠心病越重,血液中的

纤维蛋白原水平越高,血凝状态更为异常,导致冠脉内血栓形成,心脑血管事件发生几率增高<sup>[19-21]</sup>。因此纤维蛋白原水平可用于评估临床治疗的效果并反映预后。

本研究结果显示,冠心病患者血清中尿酸、超敏C反应蛋白、纤维蛋白原的水平显著升高,提示这些指标的异常参与了冠心病的发生发展。尿酸、超敏C反应蛋白和纤维蛋白原的水平在急性心肌梗死患者血清中的水平显著高于稳定型和不稳定型心绞痛,提示临床可根据这3种指标的变化反应治疗的效果,预测预后状况。

综上所述,冠心病患者血清中尿酸、超敏C反应蛋白和纤维蛋白原的水平显著升高,且与冠心病的发展预后密切相关。

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