

# 血尿酸水平与冠状动脉病变程度的关系探讨

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**摘要** 目的 探讨血尿酸(SUA)水平与冠状动脉病变程度的关系。方法 将 268 例疑似冠心病(CHD)患者,经冠状动脉造影分为冠心病组 198 例和非冠心病组 70 例,冠心病组又分为单支病变组 80 例、双支病变组 56 例、三支病变组 62 例。分别检测各组研究对象血尿酸含量,同时记录年龄、性别、吸烟、高血压、糖尿病、血尿酸及冠状动脉造影结果,分析血尿酸与已知冠心病主要危险因素、冠状动脉病变程度的相关性。结果 冠心病组血尿酸水平( $395.35 \pm 84.40$ )  $\mu\text{mol/L}$ ,显著高于非冠心病组( $282.20 \pm 66.68$ )  $\mu\text{mol/L}$  ( $P < 0.05$ )。单支病变组( $338.48 \pm 77.36$ )  $\mu\text{mol/L}$ 、双支病变组( $399.62 \pm 84.36$ )  $\mu\text{mol/L}$ 、三支病变组( $445.16 \pm 92.20$ )  $\mu\text{mol/L}$ ,血尿酸水平呈递增趋势,各组之间的差异有统计学意义。结论 血尿酸水平可反映冠状动脉病变严重程度。降尿酸治疗有望成为心血管疾病防治的一种新途径。

**关键词** 冠心病;血尿酸;冠状动脉造影术

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## The Relationship between Serum Uric Acid and Coronary Lesion Severity

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**ABSTRACT Objective:** To explore the association between serum uric acid (SUA) level and coronary lesion severity. **Methods:** The study group consisted of 268 consecutive coronary heart disease (CHD) patients undergone coronary angiography. There were 198 cases diagnosed as CHD and 70 were not. The CHD group was divided into three subgroups included single-branch (80 cases), double-branch (56 cases) and three-branch (62 cases) according to the scope of pathological changes. Serum uric acid was determined. The relative factors of CHD, such as age, gender, smoking, hypertension, diabetes and serum uric acid were recorded. We observed the correlation among SUA, known main risk factors for CHD and the severity of coronary lesions. **Results:** The SUA level of CHD ( $395.35 \pm 84.40$ )  $\mu\text{mol/L}$  was significantly higher than that of the non-CHD group ( $282.20 \pm 66.68$ )  $\mu\text{mol/L}$  ( $P < 0.05$ ). There was a trend of increase of SUA level in the single-branch subgroup ( $338.48 \pm 77.36$ )  $\mu\text{mol/L}$ , double-branch subgroup ( $399.62 \pm 84.36$ )  $\mu\text{mol/L}$ , three-branch subgroup ( $445.16 \pm 92.20$ )  $\mu\text{mol/L}$ . There was significant difference between the three groups ( $P < 0.05$ ). **Conclusions:** The level of the SUA could reflect the severity of coronary artery lesion. Lowering SUA could become a new way for cardiovascular disease prevention.

**Key words:** Coronary heart disease; Serum uric acid; Coronary angiography

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### 前言

冠心病(CHD)是多种危险因素所致的严重危害人民健康的常见病。除传统的年龄、吸烟、高血压、高血脂、高血糖等危险因素与冠心病发病有关外,近年来血尿酸(SUA)水平与冠心病的关系,逐渐为人们所关注。Framingham 心脏研究小组曾认为血尿酸水平不是心血管疾病的危险因素,但多项研究表明血尿酸水平与心血管疾病有关<sup>[1,2]</sup>,是普通人群全因死亡和冠心病死亡的危险因素<sup>[3,4]</sup>,但其是否为冠心病的独立危险因素尚存在争议。本文旨在探讨血尿酸水平与冠状动脉病变程度的关系。

### 1 资料与方法

#### 1.1 一般资料

选取 2010 年 8 月至 2010 年 12 月在湖南省人民医院心血

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管内科病房住院进行冠状动脉造影(CAG)证实为冠心病患者 198 例,男 122 例,女 76 例;年龄 42~78 岁(平均  $57.32 \pm 10.02$  岁)。根据冠脉病变程度分为单支病变组 80 例、双支病变组 56 例和三支病变组 62 例。选择同期行冠状动脉造影正常的胸痛(对照组)患者 70 例,男 41 例,女 29 例,年龄 48~77 岁,平均( $55.68 \pm 10.36$ ) 岁。

#### 1.2 入选标准

冠心病的诊断按照 WHO 冠心病诊断标准<sup>[5]</sup>,经证实冠脉狭窄  $\geq 50\%$  纳入冠心病组,  $<50\%$  纳入非冠心病组。排除原发或继发性痛风、感染性疾病、甲状腺疾病、肝肾功能异常、重度肥胖、多发性骨髓瘤等影响尿酸代谢的患者。

#### 1.3 方法

详细记录研究对象的临床资料,如年龄、性别和冠心病的危险因素,如吸烟、高血压、高血糖等,收集其入院时血尿酸结果,采用尿酸酶法测定血尿酸水平。采用 Judkins 法,常规行多体位投照, CAG 评价采用美国心脏病学会/美国心脏协会 (ACC/AHA)评分法,分为狭窄组和对照组,狭窄组冠状动脉主

干或分支直径狭窄程度≥ 50% ,对照组冠状动脉主干或分支直径狭窄程度<50%。根据病变累及的血管支数 ,分为单支、双支和三支病变组。左主干病变者 ,无论左前降支或左回旋支有无病变 ,均归为双支病变组 ,若同时合并右冠状动脉病变则归为三支病变组。

1.4 统计学方法

应用 SPSS13.0 版软件进行数据分析 ,计量资料用( $\bar{x} \pm s$ )

表示 ,两组比较采用 t 检验 ,多组比较采用方差分析 ,计数资料用率表示 ,采用卡方检验 ,以  $P<0.05$  为有统计学意义。

2 结果

2.1 两组一般临床资料比较

非冠心病组年龄、性别、吸烟史、高血压史和糖尿病史与冠心病组相比较无统计学意义(表 1)。

表 1 临床资料的比较

Table 1 Comparison of clinical data

| Clinical data | n   | Age (years)  | Sex (male/female) | Smoking (%) | Hypertension (%) | Diabetes (%) |
|---------------|-----|--------------|-------------------|-------------|------------------|--------------|
| CHD group     | 198 | 57.32± 10.02 | 122/76            | 41.67       | 41.66            | 22.12        |
| non-CHD group | 70  | 55.68± 10.68 | 41/29             | 39.52       | 38.83            | 19.68        |

Note : CHD group compared with non-CHD group,  $P>0.05$ .

2.2 非冠心病组与冠心病单支病变组、双支病变组、多支病变组患者的血尿酸比较

冠心病组血尿酸明显高于非冠心病组 ,且随着冠脉病变支数增多 ,血尿酸有增高趋势 ,且有统计学意义(表 2)。

表 2 不同病变范围冠脉间血尿酸水平比较

Table 2 Comparison of levels of serum uric acid in different coronary artery lesions

| Group                  | n   | SUA ( $\mu\text{mol/L}$ ) |
|------------------------|-----|---------------------------|
| Non-CHD group          | 70  | (282.20± 66.68)           |
| CHD group              | 198 | (395.35± 84.40)*          |
| Single-branch subgroup | 80  | (338.48± 77.36)*          |
| Double-branch subgroup | 56  | (399.62± 84.36)*#         |
| Three-branch subgroup  | 62  | (445.16± 92.20)*#△        |

Note: \* $P<0.05$  compared with non-CHD group; # $P<0.05$  compared with single-branch subgroup; △ $P<0.05$  compared with double-branch subgroup.

3 讨论

尿酸是嘌呤代谢的终产物 ,血尿酸水平增高是由于其产生过多或排泄减少所致。自从 Gertler 等<sup>[6]</sup>学者于 1951 年首次提出血尿酸可能与冠状动脉粥样硬化性疾病有关以来 ,此后大量研究显示血尿酸水平与心血管疾病相关<sup>[7-9]</sup>。然而这种关系在某些方面还存在争论 ,部分学者认为血尿酸水平升高是心脏病的伴发表现 ,而不是其独立危险因素<sup>[10]</sup>。由于高尿酸血症患者常伴随着糖代谢或脂代谢异常 ,而糖、脂代谢异常又是心血管疾病的重要危险因素 ,血尿酸与心血管疾病其他危险因素的并存有可能干扰了其与心血管疾病之间的联系<sup>[11,12]</sup>。因此高尿酸血症是否为心血管疾病中独立的危险因素 ,多项研究的结论尚不完全一致。由于进行的研究有限 ,对无症状尿酸合并多种心血管危险因素或心血管疾病时是否给予降尿酸治疗 ,目前还没有一致意见<sup>[13,14]</sup>。

本研究显示 ,血尿酸水平在冠心病组显著高于对照组 ,且随着冠状动脉病变范围的扩大而增加 ,说明血尿酸水平随着冠状动脉病变范围的扩大而增加 ,可反映冠状动脉病变程度。对预测急性冠脉事件的发生有一定的价值 ,对其早期干预有可能降低急性心血管事件的发生 ,同时可防止和延缓冠状动脉病

变的发生和发展。

目前认为 ,高血尿酸可能通过下述机制的综合作用而促进冠心病的形成和发展<sup>[15,16]</sup> :高血尿酸常伴有氧自由基生成增加并参与炎症反应 ,而后者在动脉粥样硬化形成和发展过程中起关键性作用 ,高血尿酸促进了 LDL-C 的氧化和脂质的过氧化 ;尿酸盐结晶增多 ,沉积于动脉壁 ,损伤内皮功能 ,并刺激粥样斑块的发生发展 ,高血尿酸可激活血小板 ,促进血小板黏附和聚集 ,增加冠状动脉内血栓形成。

综上所述 ,血尿酸与冠心病的发生、发展密切相关 ,是反应冠心病病情严重程度的一个重要生化指标 ,鉴于高血尿酸与心血管及肾脏疾病不良预后密切相关 ,降低血尿酸有望成为一种心血管疾病防治的新途径。虽然本研究结果与国内外多数报道一致 ,但仍需要更大样本及更多中心、结合分析其他危险因素等进一步研究 ,以明确血尿酸水平有无阈值及其在心血管病中的应用价值。

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