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血压晨峰与原发性高血压患者心律失常及心肌缺血的关系

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摘要 目的：探讨血压晨峰与原发性高血压患者心律失常及心肌缺血的相关关系及其临床意义。**方法：**选取 2011 年 1 月至 2013 年 1 月原发性高血压患者 168 例，根据动态血压结果，将血压晨峰≥ 23.6mmHg 或＜23.6mmHg 分成 A 组（晨峰组）79 例与 B 组（非晨峰组）89 例，所有患者均同步进行 24 h 动态心电图和动态血压监测，比较两组心律失常与心肌缺血发生情况。**结果：**两组患者的一般临床情况具有可比性。与 B 组比较，A 组的高血压患者更易发生频发房性早搏、房速、频发室性早搏和室速等心律失常情况，差异有统计学意义（P<0.05）。A 组患者发生心律失常总数明显高于 B 组（=52.19，r=0.552，P<0.001）。与 B 组比较，A 组的高血压患者容易发生 ST 段改变，差异有统计学意义（P<0.05）；ST-T 改变和 T 波改变两组之间差异无统计学意义（P＞0.05）。A 组患者发生心肌缺血的情况明显高于 B 组（=10.05，r=0.213，p=0.0015）。**结论：**原发性高血压患者若出现血压晨峰提示心律失常和心肌缺血的发生率增加，尤其是房性早搏的发生率明显升高。血压晨峰与患者的心律失常和心肌缺血关系密切，具有临床指导意义。

关键词：原发性高血压；晨峰；心律失常；心肌缺血；心电图

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The Relationship between Morning Peak Blood Pressure and Arrhythmia and Myocardial Ischemia in Patients with Essential Hypertension

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ABSTRACT Objective: To explore the correlation between morning peak blood pressure and arrhythmia and myocardial ischemia in patients with essential hypertension and its clinical significance. **Methods:** 168 cases of patients with essential hypertension between January 2011 and January 2013 were chosen. According to the results of the dynamic blood pressure (morning blood pressure surge≥ 23.6 mmHg or < 23.6 mmHg) patients were divided into group A (79 cases for morning peak group) and group B (89 cases for Non morning peak group), synchronous dynamic ECG and ambulatory blood pressure were monitored for 24 h in all patients, the rates of arrhythmia and myocardial ischemia were compared between two groups. **Results:** The general clinical data of two groups' of patients was comparable. Compared with group B, frequent atrial premature beat, atrial tachycardia, frequent ventricular premature beat and ventricular tachycardia were more likely to happen in patients in group A, the differences were statistically significant P< 0.05). The total number of patients undergoing arrhythmias in group A was significantly larger than in group B (= 52.19, r=0.552, P < 0.001). Compared with group B, group A was more likely to undergo the ST segment changes, and the difference was statistically significant (P< 0.05). There was no significant difference in ST -t change and T wave change between two groups (P> 0.05). The occurrence of myocardial ischemia in group A was significantly higher than that in group B (=10.05, r =0.213, P= 0.0015). **Conclusion:** Morning blood pressure peak in patients with essential hypertension suggested an increased incidence of arrhythmia and myocardial ischemia, and a significantly higher incidence of atrial premature beats. The relationship between morning blood pressure peak and arrhythmia and myocardial ischemia was close and had a clinical significance.

Key words: Primary hypertension; Morning peak; Cardiac arrhythmias; Myocardial ischemia; Electrocardiogram (ECG)

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前言

高血压是心血管疾病及心血管事件发生的主要危险因素之一[1]，患者血压的波动、昼夜变异性以及升高值都会影响高血压患者的预后[2,3]。24h 动态血压监测能够较为客观地了解血压波动情况和变化规律，其监测显示人体一天里血压变化最大的阶段是清晨的时候[4]。这一阶段，人体从睡眠状态转为清醒开始活动，血压从较低水平迅速上升到较高水平，这种现象称为血压晨峰。近年来，大量临床和流行病学研究显示[5,6]，原发性高血压患者血压的晨峰现象（凌晨血压急剧上升）与心、脑血管疾病的高发有密切的相关性，且独立于患者 24h 的血压水平。患者清晨血压高峰与心脑血管事件高发的时间相吻合，清晨血压高峰成为研究热点。本研究通过对原发性高血压患者动态血压和动态心电图的观察，探讨血压晨峰与原发性高血压患者心律失

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常及心肌缺血的相关关系，以期早期预防心血管疾病的发生。

1 资料与方法

1.1 一般资料

入选 2011 年 1 月至 2013 年 1 月原发性高血压患者 168 例，所有的患者诊断均参照《中国高血压法治指南（2005 年修订版）》诊断标准。排出标准：继发性高血压、原发性心肌梗塞或梗死、肺心病、心力衰竭、严重肝肾功能不全等患者，服用过抗心律或抗高血压患者均不能纳入实验，患者入选前必须严密观察下已停用此类药物两周以上。两组患者的一般临床情况见表 1。经卡方检验，晨峰组和非晨峰组的性别差异无统计学意义（P＞0.05）；经 T 检验，发现晨峰组和非晨峰组的年龄、病程、24h 平均收缩压、24h 平均舒张压、空腹血糖和总胆固醇差异均无统计学意义（P＞0.05）。

表 1 两组高血压患者一般资料比较（n/$\bar{x}$± s）

Table 1 Comparison of general data of patients with hypertension between two groups（n/$\bar{x}$± s）

变 量 Variable	A 组 / 晨峰组（n=79） Group A/Morning peak group (n=79)	B 组 / 非晨峰组（n=89） Group B/Non morning peak group (n=89)
性别（男 / 女）Gender(Male/Female)	（41/38）	(43/46)
年龄（岁）Age(years)	56.3± 10.1	53.5± 9.8
病程（年）Disease duration (years)	4.1± 1.8	3.7± 1.6
24h 平均收缩压（mmHg） 24h mean systolic blood pressure(mmHg)	148.4± 16.8	143.4± 14.5
24h 平均舒张压（mmHg）24h mean diastolic pressure(mmHg)	83.5± 8.2	82.3± 8.0
空腹血糖（mmol/L）Fasting blood glucose(mmol/L)	5.8± 1.5	5.9± 1.6
总胆固醇（mmol/L）Total cholesterol(mmol/L)	5.1± 1.2	4.8± 1.1

1.2 仪器与方法

两组患者均同步进行 24h 动态心电图和动态血压监测[7,8]，观察心律失常和心肌缺血的情况。动态血压监测采用中健科仪动态血压仪 CB-1805-B 行 24h 动态测量，22:00- 次日 06:00 每隔 1h 测量一次，为夜间血压；清晨 06:00-22:00 每隔半小时测量一次，为白天血压。根据动态血压的结果，将血压晨峰差值{起床后 2h 内收缩压 / 舒张压的平均值与夜间最低血压（夜间最低血压及其前后血压的平均值）的差值}≥ 23.6mmHg 或＜ 23.6mmHg 分成 A 组（实验组 / 晨峰组）79 例与 B 组（对照组 / 非晨峰组）89 例。动态心电图采用 12.3 导动态心电图分析系统，检查前 24h 停用各种抗心律失常药物，导联接线连接好后，打开开关记录。观察患者房性及室性心律，心脏传导阻滞以及 ST 波段。监测指标：本文将房（室）性早搏数大于等于 1%总心搏数的病例界定为房（室）性早搏；将房（室）性心动速度大于等于 3 个连发房（室）性异位搏动，且一天内发生 5 次以上的病例界定为房（室）性心动过速；将 ST 段从 J 点向后 80ms 开始呈水平或下斜大于 1mm，持续时间大于 1min 的界定为心肌缺血[9]。

1.3 统计学分析

采用 SPSS 18.0 统计软件进行统计分析。计量资料以均数± 标准差（$\bar{x}$± s）表示，两组资料差异性比较采用 T 检验；计数资料以例数或百分率表示，两组资料差异比较采用卡方检验，相关分析采用分类变量关联性分析。检验水准取 0.05。

2 结果

2.1 两组高血压患者的心律失常情况

与非晨峰组比较，晨峰组的高血压患者更易发生频发房性早搏、房速、频发室性早搏和室速等心律失常情况，差异有统计学意义（P<0.05）。血压晨峰组患者发生心律失常总数明显高于非晨峰组（=52.19，r=0.552，P<0.001），显示血压晨峰可能显著引发心律变化。详情见表 2。

表 2 两组高血压患者的心律失常情况比较[n(%)]

Table 2 Comparison of arrhythmia of hypertensive patients between two groups[n(%)]

变 量 Variable	A 组 / 晨峰组（n=79） Group A/Morning peak group(n=79)	B 组 / 非晨峰组（n=89） Group B/Non morning peak group(n=89)
频发房性早搏 Frequent atrial premature beats	54（68.3）	12（13.5）**
房速 Atrial tachycardia	33（41.8）	7（7.9）**
房室阻滞 Atrioventricular block	3（3.8）	2（2.2）
频发室性早搏 Frequent ventricular premature beat	35（44.3）	5（5.6）**
室速 Ventricular tachycardia	8（10.1）*	2（2.2）
合计失常 Total arrhythmia	58（73.4）	16（20.0）**

注：与 B 组比较，*P<0.05；与 A 组比较，**P<0.001

Note: Compared with group B,*P<0.05;Compared with group A,**P<0.001

2.2 两组高血压患者的心肌缺血情况

与非晨峰组比较，晨峰组的高血压患者容易发生 ST 段改变，差异有统计学意义（P<0.05）；ST-T 改变和 T 波改变两组之间差异无统计学意义（P＞0.05）。血压晨峰组患者发生心肌缺

血的情况明显高于非晨峰组(=10.05,r=0.213,P=0.0015),表明血压晨峰对心肌缺血可能有加重的作用,出现血压晨峰提示更有可能发生心肌缺血。详情见表 3。

表 3 两组高血压患者的心肌缺血检出率比较[n(%)]

Table 3 Comparison of detection rate of myocardial ischemia of hypertensive patients in two groups[n(%)]

组 别 Groups	ST 段改变 ST segment changes	ST-T 改变 ST-T change	T 波改变 T wave change	合计 Total
A 组 / 晨峰组(n=79) Group A/Morning peak group(n=79)	14(17.7)*	6(7.6)	7(8.9)	27(34.2)*
B 组 / 非晨峰组(n=89) Group B/Non morning peak group(n=89)	4(4.5)	3(3.4)	5(5.6)	12(13.5)

注:与 B 组比较,*P<0.05

Note: Compared with group B,*P<0.05

3 讨论

在原发性高血压患者体内,随着高血压状态的长期存在,心血管系统一直处于高负荷的状态,从而使机体代偿性事件的发生,比如肥厚以及扩张心肌、增大心室壁的张力、血管重构等。高血压是心房颤动最常见的独立危险因素,同时也是促使各心血管事件高发的影响因素[10,11]。人体血压会随昼夜时间、运动、心理等因素发生变化。血压的变异性,尤其是血压晨峰现象近年来越来越受重视。有许多学者认为[12-14],血压晨峰现象发生的机制可能与神经 - 内分泌系统的生理节律变化有关,清晨激活交感神经系统、肾素 - 血管紧张素 - 醛固酮系统以及动脉压力感受器敏感性下降等使患者凌晨血压急剧上升,引发各种心血管事件。本研究选取原发性高血压患者 168 例,根据动态血压的变化,分为晨峰组和非晨峰组,同期进行 24h 动态血压和心电图监测,观察和比较两组心律失常和心肌缺血的情况。

本研究结果显示,与非晨峰组比较,晨峰组的高血压患者更易发生频发房性早搏、房速、频发室性早搏和室速等心律失常情况,差异有统计学意义(P<0.05)。晨峰组患者发生心律失常总数明显高于非晨峰组(=52.19, P<0.001),患者血压晨峰与心律失常相互关联,关联系数 r=0.552。这与以往的文献报道相似[15,16]。分析其原因,可能清晨血压的升高使心血管压力超负荷而导致左心室肥厚,从而出现心肌各复极不同步,隐匿的起搏点得到不应该的激发,使得心肌自律性增高,引起心律失常[17]。本组资料显示,血压晨峰也和心肌缺血的发生有密切关系,与非晨峰组比较,晨峰组的高血压患者容易发生 ST 段改变,差异有统计学意义(P<0.05),晨峰组患者发生心肌缺血的情况明显高于非晨峰组(=10.05,P=0.0015),关联系数 r=0.213,揭示血压晨峰亦是心肌缺血的一个危险因素。有研究显示[18,19],随着血压的增加,心脏舒张末期容量升高,继而压力升高从而导致心脏内膜下灌流不足;收缩压升高,引起左室壁张力增大,继而使心率加快,引起心肌耗氧量增多,心肌的需氧合供氧不能达到平衡,导致心肌缺血,在心电图的表现为 ST 段的改变[20]。

综上所述,原发性高血压患者血压晨峰与心律失常和心肌缺血关系密切,血压晨峰是发生心律失常和心肌缺血的一个危险信号。通过同期动态心电图和动态血压的监测,有助于发现血压晨峰,指导临床合理用药,预防高血压引发不利的心血管事件。

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