

气功改善心气虚型高血压病患者心功能和微循环作用观察

上海市高血压研究所(上海 200025)

王崇行 徐定海 钱岳晟 邱安莹

内容提要 120例老年受试者作超声心动图测定,结果发现老年高血压患者(80例)左心功能低于无高血压老年人(40名),而心气虚高血压患者(46例)明显低于无心气虚高血压患者(34例)。气功治疗1年后,心输出量增加,总周围阻力降低,EF、EFV、Mvcl均趋向于增加,提示气功有纠正血液动力学失调和增进左心功能作用。120例老年受试者甲皱微循环检测发现高血压有加剧微循环障碍作用,心气虚高血压患者微循环障碍发生率为73.91%,气功锻炼1年后为39.13% ($P < 0.01$)。提示气功有改善微循环的作用。以上结果表明气功能益心气通血脉。

关键词 高血压病 心气虚 超声心动图 微循环

高血压病是中老年常见疾病,乃肝、肾、心、脏腑、经络、气血平衡失调所致^[1],病程较长。老年高血压患者常见心气虚证,以往研究提示心气虚证由于心气不足,帅血运行无力,往往呈现左心功能减退和微循环功能障碍等表现^[2]。为了评估气功对心气虚型高血压患者治疗效果,我们采用超声心动图和微循环检测为指标,对气功疗程(1年)前后心功能和微循环变化进行了对比观察。现报道如下。

对象与方法

一、对象分组和分型

1. 经病史、体检和实验室检查确诊为原发性高血压病患者80例(老年高血压组),均为男性,年龄55~75岁,平均 67.23 ± 4.13 岁。按全国中西医结合虚证辨证分型标准,心气虚型46例,无心气虚型34例,调整降压药物4周后,血压 $> 21.28/12.64$ kPa (160/95 mmHg)者列为观察对象。此后,在药物相对恒定基础上学习和锻炼气功。气功锻炼采用我所整理的以心静、体松、气和、动静结合、辨证施功为要领的基础功法——气功强身法^[3],每日1~2次,每次20~30 min。

2. 血压正常,无明显心气虚见证老年人40

名(老年正常血压者)作对照组,均为男性,年龄55~75岁,平均为 66.95 ± 4.51 岁,作超声心动图和甲皱微循环检查,以供与老年高血压组对比分析。

二、观察指标和方法

1. 超声心动图检查:采用Aloka·SSD-F20超声心动图仪,按M型超声图检测法,探头置于胸骨3~5肋间,获得II、III、IV区的M图像,并以超声心动显示图像上测取各项指标参数^[4]。本文测量和计算项目是:射血分数(EF)、二尖瓣舒张早期关闭速度(EFV)、平均周径纤维缩短率(Mvcl)以及心输出量(CO)和总周围阻力(TPR)。气功疗程(1年)前后分别作超声心动图检查(检查前停药2周),以供对比评估。

2. 甲皱微循环检测:根据10项观察指标异常情况计分(微血管外形15分、微血管张力15分、血流状态15分、血流缓慢10分、微动脉纤细10分、微静脉异常10分、静脉/动脉比10分、血色5分、出血5分、瘀血5分),综合评定微循环障碍程度(累计积分 ≥ 60 分为异常,39~59分为轻度异常, < 39 分为正常),气功疗程(1年)前后分别作甲皱微循环检测(检测前2周停药),以供对比评估。

附表 各组超声心动数值比较 ($\bar{x} \pm S$)

组别	例数	CO (L/min)	TPR (dyn·s·cm ⁻⁵)	EF (%)	EFV (mm/s)	Mvof (circ/s)
老年正常血压	40	5.15±0.86	1447.19±523.22	0.67±0.08	82.45±26.90	1.07±0.32
老年高血压	80	4.31±0.91△△	2140.63±371.59△△△	0.59±0.09△△	69.67±29.41△	0.92±0.27△
心气虚	46	4.07±0.85▲▲	2246.30±437.16▲▲	0.54±0.08▲▲▲	61.40±18.04▲▲▲	0.88±0.17▲
疗后		4.56±0.91*	2002.16±447.19*	0.61±0.10**	69.31±17.04*	0.98±0.19*
无心气虚	34	4.64±0.92	1997.66±351.97	0.66±0.10	80.36±23.53	0.97±0.19
疗后		4.58±1.01	1874.21±475.18	0.65±0.11	78.52±24.43	1.02±0.18

注：与老年正常血压组相比，△ $P<0.05$ ，△△ $P<0.01$ ，△△△ $P<0.001$ ；与无心气虚组相比，▲ $P<0.05$ ，▲▲ $P<0.01$ ，▲▲▲ $P<0.001$ ；与治疗前相比，* $P<0.05$ ，** $P<0.01$ 。

结 果

一、超声心动图检查：结果见附表。

从附表可见：(1)老年高血压组较老年正常血压组心输出量偏低，而总周围阻力增高，反映左心功能的三项指标(EF、EFV、Mvof)均较趋向于降低。(2)进一步分析心气虚患者有明显的血流动力学平衡失调和左心功能减退与无心气虚患者相比有显著或非常显著差异($P<0.05\sim0.001$)。(3)心气虚患者治疗后心输出量增加，而总周围阻力降低，反映左心功能三项指标均趋向增高，疗程前后对比有显著或非常显著差异($P<0.05\sim0.01$)。

二、微循环检查：观察结果如下：(1)老年高血压患者组微循环障碍发生率为53.75%，而老年正常血压组微循环障碍发生率仅17.50%($P<0.01$)。(2)进一步分析心气虚患者微循环障碍发生率73.91%，无心气虚患者仅26.47%($P<0.01$)。(3)心气虚患者治疗前微循环障碍发生率为73.91%，而治疗后降为39.13%，疗程前后有显著差异($P<0.05$)。

讨 论

一、中医学认为，“气”和“血”是构成人体的重要物质和提供能量的基础，机体的正常功能有赖于气血在经脉中顺利运行。“心主血脉”，“气为血帅”，气行则血行，气滞则血瘀，气虚则血运行无力。以往中西医结合研究提示心气盛衰与左心室泵血功能及微循环状态具有内在联系。老年高血压患者由于增龄和疾病因

素往往呈现心气虚见证^[5]。本文80例老年高血压患者分型对比检测发现：心气虚型高血压患者和无心气虚型高血压患者相比，EF、EFV、Mvof明显降低，微循环障碍发生率明显增加，提示左心室泵血功能减退，微循环障碍，血液动力学平衡失调是心气虚患者重要病理生理特征之一。

二、气功是我国传统医疗保健方法，通过调心、调身、调息三方面协同锻炼，宁心安神，增进脏腑功能，从而促使心气旺盛、血脉流畅。以往研究提示，气功对改善大脑功能、植物神经系统机能状态和纠正血液流变学异常有良好作用，坚持锻炼对防治高血压及其心脑血管并发症有较好疗效^[6,7]。本文研究发现坚持气功锻炼明显改善心气虚型高血压患者左心功能及微循环状态和纠正血液动力学平衡失调，从而表明气功锻炼是防治心气虚型高血压患者的有效措施之一。

参 考 文 献

1. 邱安梁，等。近年来我国在高血压研究工作上的初步成果。中华内科学杂志 1960；8(2):100。
2. 廖家楨，等。冠心病心气虚证临床微观辨证初探。上海中医药杂志 1987；11:2。
3. 王崇行，等。气功强身法——防治心身疾病基础功法。气功纵横 1989；2:5。
4. 沈家麒，等。老年人超声心动图表现及其高血压的影响。中华老年医学杂志 1982；4:193。
5. 王崇行，等。高血压病临床微观辨证及气功纠正作用的研究。上海中医药杂志 1989；9:2。
6. 王崇行，等。气功对中老年高血压病人心脑功能减退康复作用的研究。中国康复医学杂志 1988；3(3):97。
7. 邱安梁，等。气功治疗高血压204例20年疗效预后对照观察和有关机理探讨。中西医结合杂志 1986；6(1):9。

point of ear needling. Comparison of hypotensive effect of short-term between Heart point and Stomach point of ear needling showed that there was markable hypotensive effect by Heart point, whose hypotensive rate of short-term was 100% and forward effect rate was 63.3%. There was inefficacy for hypotensive by Stomach point. There was marked effect of left cardiac function, with II, III stage of hypertension, which was improved by Heart point. There was inefficacy for left cardiac function of normal being.

Key Words hypertension, ear needling, Heart point, left cardiac function

(Original article on page 654)

The Influence of Sodium Ferulate on Hypotensive Effect and Urinary Excretion of TXB_2 after Captopril in Essential Hypertensive Patients

Xu Xiu-ying(徐秀英), Wang Qi(王琦), et al

Department of Internal Medicine, Tiantan Hospital, Beijing (100050)

In the present study, the influence of sodium ferulate (SF) on hypotensive effect and urinary excretion of TXB_2 after captopril (CAP) was observed in 44 patients with essential hypertension. A single oral dose of CAP (50 mg) decreased mean arterial pressure (MAP) from 16.25 ± 0.85 to 13.65 ± 1.14 kPa, $n=28$, ($P < 0.01$), and increased urinary TXB_2 excretion significantly from 119.12 ± 57.12 to 183.32 ± 78.61 pg/min, $n=16$, ($P < 0.05$). The administration of SF 300 mg/d for one day did not affect the MAP. CAP in combination with SF induced a decrease both in MAP from 16.33 ± 1.14 to 13.83 ± 1.77 kPa, $n=16$, ($P < 0.01$) and urinary TXB_2 excretion from 155.89 ± 69.64 to 133.43 ± 60.01 pg/min, $n=16$, ($P > 0.05$) though the latter was not so significant. Compared with the administration of CAP alone, the combination of CAP and SF induced stronger hypotensive effect ($P < 0.05$) and the increased urinary TXB_2 excretion could be inhibited by SF, but the inhibition to angiotensin converting enzyme was the same. These results suggested that the increased urinary TXB_2 excretion by CAP can be inhibited and the hypotensive effect of CAP is potentiated by SF in essential hypertensive patients.

Key Words captopril, sodium ferulate, hypertension, angiotensin converting enzyme, thromboxane B_2

(Original article on page 657)

The Beneficial Effect of Qigong (气功) on the Ventricular Function and Microcirculation of Deficiency of Heart-Energy Hypertensive Patients

Wang Chong-xing(王崇行), Xu Din-hai(徐定海), et al

Shanghai Institute of Hypertension, Shanghai Second Medical University, Shanghai (200025)

Ultrasonic cardiogram was performed on 120 aged subjects. Experiment showed that the left ventricular function in the hypertensive aged group ($n=80$) was lower than that in the aged group ($n=40$), while the left ventricular function in the deficiency of heart-energy hypertensive patients ($n=46$) was the lowest in the non-deficiency of heart-energy hypertensive patients ($n=34$). After practising Qigong for 1 year, the cardiac output (CO) was increased, the total peripheral resistance (TPR) was decreased, ejection fraction (EF) mitral valve diastolic closing velocity and mean velocity of circumferential fiber shortening (mvcf) tended to be increased. The results indicated that Qigong had a regulatory effect on haemodynamic alteration as well as on improvement of left ventricular function. Nailfold microcirculation detection of 120 aged subjects was made. It found that hypertension had an accelerating effect on the disturbance of microcirculation. The incidence of disturbance of microcirculation was 73.91% in the deficiency of heart-energy hypertensive patients, after 1 year Qigong practice, the incidence of disturbance of microcirculation was 39.13% ($P < 0.01$). The result suggested that Qigong had an effect to improve the disturbance of microcirculation. The above data indicate that Qigong can benefit heart-energy and regulate the blood channel.

Key Words hypertension, deficiency of heart-energy, ultrasonic cardiogram, microcirculation

(Original article on page 659)