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冠心病患者颈动脉粥样硬化超声相关参数与病变严重程度的关系

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摘要 目的:研究冠心病患者颈动脉粥样硬化超声相关参数与病变严重程度的关系,为冠心病的诊断提供依据。**方法:**选取 2015 年 1 月至 2016 年 6 月我院收治的冠心病患者 100 例作为研究组,根据冠状动脉造影结果分为 1 支病变组(24 例),2 支病变组(44 例)和 3 支病变组(32 例)。根据 Gensini 评分分为轻度病变组(Gensini 评分 <20 分, n=26),中度病变组(20 分 ≤ Gensini 评分 <40 分, n=45)和重度病变组(Gensini 评分 ≥ 40 分, n=29)。另选取同期医院体检的健康体检者 30 例作为对照组。应用颈动脉超声多普勒检查各组颈动脉超声相关参数,采用 Pearson 相关性分析超声相关参数与病变严重程度的关系。**结果:**研究组颈动脉中膜厚度(IMT)、颈总动脉硬化度(β)、颈动脉顺应性(AC)、弹性系数(EP)、脉搏波传导速度(PEVβ)均显著高于对照组,差异有统计学意义(P<0.05)。随着冠状动脉病变支数增加,受试者 IMT、β、EP、AC、PEVβ 升高,其中 3 支病变组>2 支病变组>1 支病变组>对照组(P<0.05)。随着冠状动脉病变程度增加,受试者 IMT、β、EP、AC、PEVβ 升高,其中重度病变组>中度病变组>轻度病变组>对照组(P<0.05)。经 Pearson 相关性分析显示:冠心病患者 IMT、β、EP、AC、PEVβ 与病变血管支数呈正相关(r=0.607, 0.428, 0.532, 0.507, 0.556, 均 P<0.05),与 Gensini 评分呈正相关(r=0.624, 0.432, 0.517, 0.521, 0.543, 均 P<0.05)。**结论:**冠心病患者颈动脉粥样硬化超声相关参数与患者病变程度相关,颈动脉超声检查可以作为冠心病的诊断手段。

关键词:冠心病;颈动脉粥样硬化;相关性;超声

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Relationship of Severity and Ultrasonic Parameters of Carotid Atherosclerosis in Patients with Coronary Heart Disease

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ABSTRACT Objective: To study the relationship of severity and ultrasonic parameters of carotid atherosclerosis in patients with coronary heart disease, and to provide evidence for the diagnosis of coronary heart disease. **Methods:** 100 patients with coronary heart disease who were treated in our hospital from January 2015 to June 2016 were selected as study group, which were divided into 1 vessel lesions group (24 cases), 2 vessel lesions group (44 cases) and 3 vessel lesions group (32 cases) according to the results of coronary angiography. And were divided into mild lesion group (Gensini score <20, n=26), moderate lesion group (20 ≤ Gensini score <40, n=45) and severe lesion group (Gensini score ≥ 40, n=29) according to Gensini score. 30 cases of health examination in the hospital during the same period were selected as control group. Detect of carotid ultrasound parameters in each group according to carotid artery ultrasonography Doppler, and analyzed of the relationship of ultrasonic parameters and severity of lesions according to Pearson. **Results:** The carotid intima-media thickness (IMT), common carotid artery stiffness (β), carotid artery compliance (AC), elastic parameters (EP), pulse wave velocity (PEVβ) in the study group were significantly higher than those in the control group, the differences were statistically significant (P<0.05). The IMT, β, EP, AC and PEVβ were increased with the increased in numbers of coronary artery lesion, the 3 vessel lesions group>2 vessel lesions group>1 vessel lesions group>control group (P<0.05). The IMT, β, EP, AC and PEVβ were increased with the increased of severity of coronary artery disease, the severe lesion group>moderate lesion group>mild lesion group>control group (P<0.05). The IMT, β, EP, AC and PEVβ of patients with coronary heart disease and the number of diseased vessels were positively related (r=0.607, 0.428, 0.532, 0.507, 0.556, P<0.05), those and the Gensini score were positively related (r=0.624, 0.432, 0.517, 0.521, 0.543, P<0.05). **Conclusion:** The carotid ultrasound parameters and lesion severity in patients with coronary artery disease are relevant, carotid artery ultrasonography can be use as a diagnostic means for coronary heart disease.

Key words: Coronary heart disease; Carotid atherosclerosis; Correlation; Ultrasonography

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前言

冠心病是心血管系统常见疾病,近年来发病率呈升高的趋势,发病年龄逐渐年轻化。该病的主要病理变化是冠状动脉粥样硬化导致冠状动脉血管狭窄,心肌血流供应减少,导致心肌缺血^[1]。但是由于心肌具有强大的代偿功能,早期往往不易发现,当冠状动脉狭窄到一定程度时才能出现临床症状,给冠心病的治疗带来一定阻碍^[2]。目前临床上常用诊断冠心病方法为冠状动脉造影,但这种方法具有创伤性,且费用较高,不适合作为筛查的方法^[3]。颈动脉位于颈部,其解剖位置相对固定,表浅。研究发现,颈动脉粥样硬化与冠状动脉粥样硬化病变表现一致,也是全身动脉粥样硬化的局部表现^[4],通过超声对颈动脉进行检查可以反映全身动脉粥样硬化的情况,然而这种变化是否对冠心病的诊断具有价值尚存在争议。为探讨冠心病患者颈动脉粥样硬化超声相关参数与病变严重程度的关系,笔者进行了相关研究,现报道如下。

1 资料和方法

1.1 临床资料

选取 2015 年 1 月至 2016 年 6 月我院收治的冠心病患者 100 例作为研究组,纳入标准:(1)所有患者均经冠脉造影显示左前降支、回旋支以及右冠脉中至少存在一支狭窄,确认为冠心病;(2)既往未发生过急性冠脉综合征;(3)所有患者均签署了知情同意书。排除标准:(1)伴有心肌病、心肌炎、瓣膜病的患者;(2)凝血功能障碍患者;(3)伴有严重心、肝、肾等脏器功能障碍者;(4)近 6 个月内发生过急性冠脉综合征或脑梗死的患者。根据冠状动脉造影结果分为 1 支病变组(24 例):男性 16 例、女性 8 例,年龄 45~79 岁,平均年龄(65.4±5.8)岁;2 支病变组(44 例):男性 28 例、女性 16 例,年龄 42~80 岁,平均年龄(65.1±5.9)岁;3 支病变组(32 例):男性 22 例、女性 10 例,

年龄 41~78 岁,平均年龄(64.8±5.6)岁。根据 Gensini 评分分为轻度病变组(Gensini 评分<20 分,n=26):男性 18 例、女性 8 例,年龄 45~80 岁,平均年龄(65.5±5.9)岁。中度病变组(20 分≤Gensini 评分<40 分,n=45):男性 27 例、女性 18 例,年龄 42~80 岁,平均年龄(65.3±5.8)岁。重度病变组(Gensini 评分≥40 分,n=29):男性 21 例、女性 8 例。另选取同期医院体检的健康体检者 30 例作为对照组:男性 18 例,女性 12 例,年龄 40~78 岁,平均年龄(64.8±6.2)岁。各组患者在年龄、性别等比较无统计学差异(P>0.05),具有可比性。本次研究已获得医院内的伦理委员会评审通过。

1.2 研究方法

所有受试者行颈动脉超声检查,受试者呈仰卧位,静息休息 10min 后应用 Philips IE33 彩色多普勒超声诊断仪,探头频率 10MHz。检测双侧颈总动脉硬化程度,包括颈总动脉硬化度(β)、颈动脉顺应性(AC)、弹性系数(EP)、脉搏波传导速度(PEVβ),取两侧平均值作为最终结果。测量血管前、后壁颈动脉中膜厚度(IMT),取平均值作为最终结果。比较各组间指标差异,并应用 Pearson 相关性分析分析相关性。采用 Gensini 评分^[4]评价病情严重程度,由狭窄程度和病变部位两个评分组成,得分越高病情越重。

1.3 统计学方法

应用 SPSS20.0 统计软件进行数据分析。计量资料以均数±标准差($\bar{x} \pm s$)表示,多组间比较应用单因素方差分析,两组比较采用 LDT-t 进行检验,相关性的分析采用 Pearson 法进行,P<0.05 为差异有统计学意义。

2 结果

2.1 冠心病患者与健康体检者颈动脉粥样硬化超声参数比较

研究组 IMT、β、EP、AC、PEVβ 均显著高于对照组(P<0.05),见表 1。

表 1 两组颈动脉粥样硬化超声参数比较

Table 1 Comparison of ultrasonic parameters of carotid atherosclerosis in the two groups

Groups	n	IMT(mm)	β	EP	AC(mm ² /kPa)	PEVβ
Control group	30	0.75±0.23	3.84±0.52	102.42±15.33	0.51±0.08	4.28±0.22
Research group	100	0.93±0.28	7.83±0.78	145.73±20.12	0.85±0.10	8.24±0.55
t		-2.786	-2.826	-2.734	-2.863	-2.808
P		0.000	0.000	0.000	0.000	0.000

2.2 不同冠状动脉病变支数患者和对照组颈动脉粥样硬化超声参数比较

各组 IMT、β、EP、AC、PEVβ 比较差异有统计学意义(P<0.05),随冠状动脉病变支数增加,受试者 IMT、β、EP、AC、PEVβ 升高,其中 3 支病变组>2 支病变组>1 支病变组>对照组(P<0.05),见表 2。

2.3 不同病变程度患者和对照组颈动脉粥样硬化超声参数比较

各组 IMT、β、EP、AC、PEVβ 比较差异有统计学意义(P<0.05),随冠状动脉病变程度增加,受试者 IMT、β、EP、AC、

PEVβ 升高,其中重度病变组>中度病变组>轻度病变组>对照组(P<0.05),见表 3。

2.4 颈动脉粥样硬化超声参数与病变血管支数、Gensini 评分相关性分析

经 Pearson 相关性分析显示:冠心病患者 IMT、β、EP、AC、PEVβ 与病变血管支数呈正相关(r=0.607,0.428,0.532,0.507,0.556,均 P<0.05),与 Gensini 评分呈正相关(r=0.624,0.432,0.517,0.521,0.543,均 P<0.05)。

3 讨论

表 2 不同冠状动脉病变支数患者和对照组颈动脉粥样硬化参数比较

Table 2 Comparison of ultrasonic parameters of carotid atherosclerosis in different numbers of coronary artery lesions and control group

Groups	n	IMT(mm)	β	EP	AC(mm ² /kPa)	PEV β
Control group	30	0.75 $\pm$ 0.23	3.84 $\pm$ 0.52	102.42 $\pm$ 15.33	0.51 $\pm$ 0.08	4.28 $\pm$ 0.22
1 vessel lesions group	24	0.84 $\pm$ 0.18*	5.62 $\pm$ 0.58*	114.43 $\pm$ 16.24*	0.67 $\pm$ 0.07*	5.84 $\pm$ 0.44*
2 vessel lesions group	44	0.91 $\pm$ 0.22**	7.72 $\pm$ 0.72**	140.28 $\pm$ 18.72**	0.81 $\pm$ 0.09**	8.18 $\pm$ 0.42**
3 vessel lesions group	32	0.98 $\pm$ 0.19** Δ	9.17 $\pm$ 0.88** Δ	170.42 $\pm$ 17.28** Δ	0.95 $\pm$ 0.11** Δ	10.53 $\pm$ 0.87** Δ
F		6.582	10.282	28.527	6.852	15.282
P		0.017	0.005	0.000	0.012	0.006

Note: Compared with the control group, *P<0.05; compared with the 1 lesions group, [#]P<0.05; compared with the 2 lesions group, ^ΔP<0.05.

表 3 不同病变程度组和对照组颈动脉粥样硬化超声参数比较

Table 3 Comparison of ultrasonic parameters of carotid atherosclerosis in different degree of pathological changes and control group

Groups	n	IMT(mm)	β	EP	AC(mm ² /kPa)	PEV β
Control group	30	0.75 $\pm$ 0.23	3.84 $\pm$ 0.52	102.42 $\pm$ 15.33	0.51 $\pm$ 0.08	4.28 $\pm$ 0.22
Mild lesion group	26	0.82 $\pm$ 0.17*	5.59 $\pm$ 0.52*	112.52 $\pm$ 15.13*	0.65 $\pm$ 0.08*	5.81 $\pm$ 0.33*
Moderate lesion group	45	0.92 $\pm$ 0.21**	7.73 $\pm$ 0.71**	141.27 $\pm$ 17.21**	0.82 $\pm$ 0.10**	8.20 $\pm$ 0.37**
Severe lesion group	29	0.99 $\pm$ 0.22** Δ	9.18 $\pm$ 0.89** Δ	172.33 $\pm$ 16.21** Δ	0.97 $\pm$ 0.12** Δ	10.28 $\pm$ 0.85** Δ
F	-	6.582	10.282	28.527	6.852	15.282
P	-	0.017	0.005	0.000	0.012	0.006

Note: Compared with the control group, *P<0.05; compared with the mild lesion group, [#]P<0.05; compared with the moderate lesion group, ^ΔP<0.05.

冠心病是因冠状动脉粥样硬化病变得血管腔阻塞或狭窄,出现心肌缺氧、缺血甚至坏死的心脏疾病^[5,6]。由于该病呈慢性发展,而心肌具有强大的代偿功能,往往早期患者不易觉察,就诊时往往冠状动脉已存在严重的病变,影响患者预后。目前,冠状动脉造影是临床上诊断冠心病的金标准,但这种方法具有创伤性,且费用较高,不适合作为筛查的方法。近年来研究表明^[7,8],冠状动脉粥样硬化仅是全身动脉粥样硬化的局部表现,冠心病患者同时存在其他血管的粥样硬化病变。而在动脉粥样硬化病变中,颈动脉是最容易受累的部位,且由于颈动脉解剖位置相对固定,位置表浅,在超声检查下可以获得高质量的图像^[9]。但目前临床上对于颈动脉超声检查能否作为冠心病的诊断依据尚存在争议。其主要争议在于颈动脉粥样硬化的程度能否反映冠心病的严重程度^[10,11]。

本研究对冠心病患者和健康对照者进行了对照研究,结果显示研究组 IMT、 β 、EP、AC、PEV β 均显著高于对照组。其中 IMT 是颈动脉超声的重要指标,也是反映颈动脉粥样硬化的程度的重要参数^[12]。而 β 、EP、AC、PEV β 主要反映颈动脉血管壁的硬化程度及顺应性改变,其水平越高表明颈动脉顺应性越低、硬化程度越高^[13,14]。本研究结果表明冠心病患者存在颈动脉的异常改变,提示通过颈动脉超声检查可以为冠心病的诊断提供辅助依据。目前多项研究表明冠心病患者存在 IMT 升高的现象,但这种病理变化能否反映冠心病的严重程度仍缺乏报道^[15-17]。本研究分别对不同冠状动脉病变支数以及不同病变程度的患者颈动脉粥样硬化参数进行了比较,结果发现随冠状动脉病变支数增加,患者 IMT、 β 、EP、AC、PEV β 升高。随冠状动脉病变程度增加,患者 IMT、 β 、EP、AC、PEV β 升高。这一结果表明不

同冠心病病变程度的患者颈动脉粥样硬化程度不同,冠状动脉病变越严重,患者颈动脉粥样硬化程度越严重。经 Pearson 相关性分析显示:冠心病患者 IMT、 β 、EP、AC、PEV β 与病变血管支数呈正相关(P<0.05),与 Gensini 评分呈正相关(P<0.05)。其中 Gensini 评分是目前评价冠状动脉粥样硬化程度的重要评分,它主要通过冠状动脉分支血管的狭窄程度和病变血管的重要程度进行评分^[18]。本研究结果表明冠心病患者 IMT、 β 、EP、AC、PEV β 与病变血管支数和冠状动脉粥样硬化程度呈正相关。提示颈动脉粥样硬化超声相关参数与冠心病的严重程度存在关系,这对冠心病的诊断具有重要意义。同时还应注意到,在临床实践中经常发现颈动脉粥样硬化的形成往往先于其他部位,其病变程度也相对较重。我们认为这主要由于颈动脉在此分叉,血流对管壁冲击力增加,因此病变较为严重^[19,20],因此对于颈动脉超声检查异常的患者应结合临床资料综合判断,以免造成误诊。

综上所述,冠心病患者颈动脉粥样硬化超声相关参数与患者病变程度相关,颈动脉超声检查可以作为冠心病的诊断手段。

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