

· 论著 ·

【编者按】近年来,我国冠心病发病率呈迅猛增长趋势,且日趋年轻化。冠心病起病急,发病前常无明显前驱症状,且致残率、病死率较高,故寻找识别早期冠心病的方法非常重要。耳垂皱褶是一个易于观察的体表特征,且主流医学观点支持其与冠心病相关。王用等在既往研究基础上将耳垂皱褶分为无、单侧、双侧耳垂皱褶,结果显示,单侧、双侧耳垂皱褶是冠心病的独立影响因素,双侧耳垂皱褶者冠心病发生风险高于单侧耳垂皱褶者,且耳垂皱褶与冠状动脉狭窄程度有关,为耳垂皱褶作为识别冠心病的有效征象提供文献支持。敬请关注!

耳垂皱褶与冠心病的关系研究

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【摘要】目的 探讨耳垂皱褶与冠心病的关系。方法 连续选取2014年5—8月在江苏省人民医院行冠状动脉造影检查者443例,其中无耳垂皱褶者146例,单侧耳垂皱褶者71例,双侧耳垂皱褶者226例;有冠心病者353例,无冠心病者90例。比较无、单侧、双侧耳垂皱褶者一般资料、实验室检查指标、冠心病发生情况及Gensini积分,并比较有冠心病者一般资料、实验室检查指标及耳垂皱褶情况;耳垂皱褶与冠心病的关系分析采用多因素Logistic回归分析。结果 (1)无、单侧、双侧耳垂皱褶者吸烟率、舒张压、空腹血糖、总胆固醇、三酰甘油、高密度脂蛋白及低密度脂蛋白比较,差异无统计学意义($P>0.05$);单侧和双侧耳垂皱褶者年龄大于无耳垂皱褶者,男性比例、收缩压、冠心病发生率及Gensini积分高于无耳垂皱褶者($P<0.05$);双侧耳垂皱褶者冠心病发生率和Gensini积分高于单侧耳垂皱褶者($P<0.05$)。(2)有冠心病者年龄、男性比例、吸烟率、耳垂皱褶情况比较,差异有统计学意义($P<0.05$);有冠心病者收缩压、舒张压、空腹血糖、总胆固醇、三酰甘油、高密度脂蛋白、低密度脂蛋白比较,差异无统计学意义($P>0.05$)。(3)多因素Logistic回归分析结果显示,单侧耳垂皱褶[$OR=3.752, 95\%CI(1.751, 8.037)$]和双侧耳垂皱褶[$OR=6.880, 95\%CI(3.863, 12.255)$]是冠心病的独立影响因素($P<0.05$);根据性别进行亚组分析结果显示,单侧和双侧耳垂皱褶分别是男性[单侧耳垂皱褶: $OR=3.763, 95\%CI(1.445, 9.801)$];双侧耳垂皱褶: $OR=5.758, 95\%CI(2.753, 12.042)$];女性[单侧耳垂皱褶: $OR=3.636, 95\%CI(1.011, 13.093)$];双侧耳垂皱褶: $OR=8.909, 95\%CI(3.537, 22.439)$]冠心病的独立影响因素($P<0.05$)。结论 单侧、双侧耳垂皱褶是冠心病的独立影响因素,双侧耳垂皱褶者冠心病发生风险高于单侧耳垂皱褶者,且耳垂皱褶与冠状动脉狭窄程度有关。

【关键词】冠心病;耳垂皱褶;冠状动脉狭窄程度;影响因素分析

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Relationship between Earlobe Creases and Coronary Heart Disease WANG Yong¹, JIA En-zhi², LI Chao-yang²

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【Abstract】Objective To investigate the relationship between earlobe creases and coronary heart disease. Methods

A total of 443 subjects undergoing coronary angiography were continuously selected in Jiangsu Provincial People's Hospital from May to August in 2014, there into 146 cases without earlobe creases were served as A1 group, 71 cases with unilateral earlobe crease were selected as A2 group, 226 cases with bilateral earlobe creases were served as A3 group; 353 cases with coronary heart disease were served as B1 group, the other 90 cases without coronary heart disease were served as B2 group. General information, laboratory examination results, incidence of coronary heart disease and Gensini score were compared in A1 group, A2 group and A3 group, general information, laboratory examination results and earlobe creases status were compared between B1 group and B2 group; relationship between earlobe creases and coronary heart disease was analyzed by multivariate

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Logistic regression analysis. **Results** (1) No statistically significant differences of smoking rate, DBP, FPG, TC, TG, HDL or LDL was found in A1 group, A2 group and A3 group ($P>0.05$); age in A2 group and A3 group was statistically significantly older than that in A1 group, respectively, meanwhile male proportion, SBP, incidence of coronary heart disease and Gensini score in A2 group and A3 group were statistically significantly higher than those in A1 group ($P<0.05$); incidence of coronary heart disease and Gensini score in A3 group were statistically significantly higher than those in A2 group ($P<0.05$).

(2) There were statistically significant differences of age, male proportion, smoking rate and earlobe creases status between B1 group and B2 group ($P<0.05$), while no statistically significant differences of SBP, DBP, FPG, TC, TG, HDL or LDL was found between B1 group and B2 group ($P>0.05$).

(3) Multivariate Logistic regression analysis results showed that, unilateral earlobe crease [$OR=3.752, 95\%CI(1.751, 8.037)$] and bilateral earlobe creases [$OR=6.880, 95\%CI(3.863, 12.255)$] were independent influencing factors of coronary heart disease ($P<0.05$); subgroup analysis results depended on gender showed that, unilateral earlobe crease and bilateral earlobe creases were still independent influencing factors of coronary heart disease in males [unilateral earlobe crease: $OR=3.763, 95\%CI(1.445, 9.801)$; bilateral earlobe creases: $OR=5.758, 95\%CI(2.753, 12.042)$] and in females [unilateral earlobe crease: $OR=3.636, 95\%CI(1.011, 13.093)$; bilateral earlobe creases: $OR=8.909, 95\%CI(3.537, 22.439)$], respectively ($P<0.05$).

Conclusion Unilateral earlobe crease and bilateral earlobe creases are independent influencing factors of coronary heart disease, bilateral earlobe creases may significantly increase the risk of coronary heart disease compared with unilateral earlobe crease, and earlobe creases was significantly correlated with degree of coronary artery stenosis.

【Key words】 Coronary disease; Earlobe creases; Degree of coronary artery stenosis; Root cause analysis

心脑血管疾病是 21 世纪发病率及病死率较高的疾病类型, 已成为全球范围内严重的公共卫生问题^[1]。据统计, 近 30 年我国每年因心血管疾病死亡人数超过 100 万^[2], 预计到 2030 年由心血管疾病造成的花费将达到 10 440 亿美元^[3]。目前, 我国冠心病患者已超过 1.3 亿人。冠心病起病急, 发病前常无前驱症状, 且致残率、病死率较高, 故寻找能早期预测冠心病发生风险的方法非常重要^[4]。我国古代有“阳性的耳垂标志”可预测早期冠状动脉粥样硬化的说法^[5]。1973 年, 弗兰克首次记录对角耳垂折痕 (DELIC)^[6]; 之后有关耳垂皱褶与冠心病关系的研究报道越来越多^[7-12]。有荟萃分析结果显示, 合并高龄、颈动脉粥样硬化和斑块、氧化应激、双侧耳垂皱褶、代谢综合征、人类白细胞抗原 BW54 异常、外周动脉硬化患者冠心病发病风险较高, 且耳垂皱褶与冠心病严重程度有关^[12]。本研究旨在探讨耳垂皱褶与冠心病的关系, 现报道如下。

1 资料与方法

1.1 一般资料 连续选取 2014 年 5—8 月在江苏省人民医院行冠状动脉造影检查者 443 例, 年龄 36~91 岁; 其中男 316 例, 女 127 例; 无耳垂皱褶者 146 例, 单侧耳垂皱褶者 71 例, 双侧耳垂皱褶者 226 例; 有冠心病者 353 例, 无冠心病者 90 例。排除标准: (1) 急性感染期者; (2) 合并严重肝肾功能不全、心源性休克、肿瘤、甲状腺功能亢进症者。本研究经江苏省人民医院医学伦理委员会审核批准, 所有受试者对本研究知情同意。

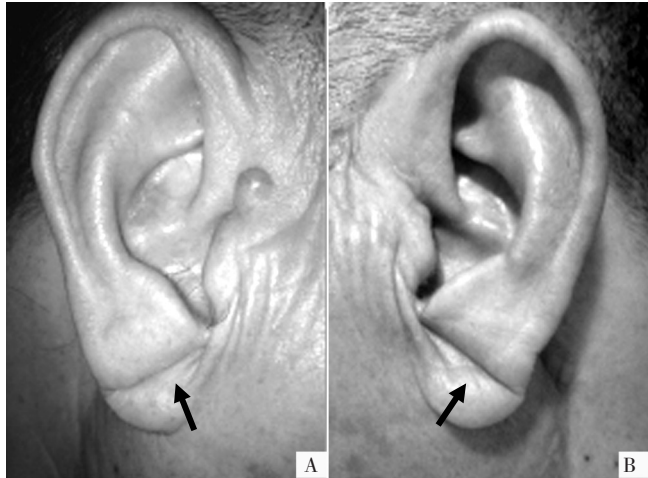
1.2 观察指标 比较无、单侧、双侧耳垂皱褶者一般资料、实验室检查指标、冠心病发生情况及 Gensini 积

分, 并比较有无冠心病者一般资料、实验室检查指标及耳垂皱褶情况。一般资料包括年龄、性别、有无吸烟 (>1 支/d 且连续或累计吸烟时间 >6 个月者定义为吸烟)、血压; 实验室检查指标包括空腹血糖、总胆固醇、三酰甘油、高密度脂蛋白、低密度脂蛋白, 需抽取所有受试者入院后次日清晨空腹静脉血 5 ml, 3 500 r/min 离心 3~5 min 后分离血清, 采用全自动生化分析仪 (日本 AU Olympus 5400) 进行检测。

1.3 冠状动脉造影方法 采用 Judkins 法^[13]进行冠状动脉造影, 以至少 1 支主要心外膜血管狭窄率 >50% 定义为冠心病^[14]。采用 Gensini 积分系统评估冠状动脉狭窄程度^[15]: 冠状动脉狭窄率 ≤ 25% 计 1 分, 26%~50% 计 2 分, 51%~75% 计 4 分, 76%~90% 计 8 分, 91%~99% 计 16 分, 100% 计 32 分; 根据冠状动脉病变部位确定系数, 其中左主干为 5.0, 前降支近、中、远段分别为 2.5、1.5、1.0, 第一对角支为 1.0, 第二对角支为 0.5, 回旋支近、远段分别为 2.5、1.0, 钝缘支为 1.0, 后降支为 1.0。各病变部位计分乘以相应系数后相加总和即为 Gensini 积分。

1.4 耳垂皱褶判定标准^[16] 耳垂有斜行连贯的折痕 (>1 mm), 起自耳屏并斜向耳垂边缘, 覆盖至少 2/3 耳垂长度 (见图 1)。

1.5 统计学方法 采用 SPSS 16.0 统计学软件进行数据处理, 符合正态分布的计量资料以 ($\bar{x} \pm s$) 表示, 多组间比较采用单因素方差分析, 两组间比较采用成组 *t* 检验; 不符合正态分布的计量资料以 *M* (*QR*) 表示, 组间比较采用非参数检验; 计数资料分析采用 χ^2 检验; 等级资料分析采用秩和检验; 冠心病影响因素分析采用



注: A 为右侧耳垂皱褶, B 为左侧耳垂皱褶

图 1 耳垂皱褶

Figure 1 Earlobe creases

多因素 Logistic 回归分析。以 $P < 0.05$ 为差异有统计学意义。

2 结果

2.1 无、单侧、双侧耳垂皱褶者一般资料、实验室检查指标、冠心病发生情况及 Gensini 积分比较 无、单侧、双侧耳垂皱褶者吸烟率、舒张压、空腹血糖、总胆固醇、三酰甘油、高密度脂蛋白及低密度脂蛋白比较, 差异无统计学意义 ($P > 0.05$); 无、单侧、双侧耳垂皱褶者年龄、男性比例、收缩压、冠心病发生率及 Gensini 积分比较, 差异有统计学意义 ($P < 0.05$)。单侧和双侧耳垂皱褶者年龄大于无耳垂皱褶者, 男性比例、收缩压、冠心病发生率及 Gensini 积分高于无耳垂皱褶者, 差异有统计学意义 ($P < 0.05$); 双侧耳垂皱褶者冠心病发生率

及 Gensini 积分高于单侧耳垂皱褶者, 差异有统计学意义 ($P < 0.05$, 见表 1)。

2.2 有无冠心病者一般资料、实验室检查指标及耳垂皱褶情况比较 有无冠心病者年龄、男性比例、吸烟率、耳垂皱褶情况比较, 差异有统计学意义 ($P < 0.05$); 有无冠心病者收缩压、舒张压、空腹血糖、总胆固醇、三酰甘油、高密度脂蛋白、低密度脂蛋白比较, 差异无统计学意义 ($P > 0.05$, 见表 2)。

2.3 冠心病影响因素分析 将表 2 中有统计学差异的指标作为自变量, 将冠心病作为因变量 (变量赋值见表 3) 进行多因素 Logistic 回归分析, 结果显示, 性别、单侧耳垂皱褶和双侧耳垂皱褶是冠心病的独立影响因素 ($P < 0.05$, 见表 4)。根据性别进行亚组分析, 结果显示, 单侧耳垂皱褶和双侧耳垂皱褶分别是男性、女性冠心病的独立影响因素 ($P < 0.05$, 见表 5~6)。

3 讨论

目前, 冠心病已成为威胁我国人民健康的主要疾病之一, 而通过预警体征尽早发现并及时处理冠心病对改善患者预后具有重要意义^[17]。耳垂皱褶是耳垂上出现的从耳屏到耳垂后外侧缘的皱褶, 是一个易于观察的体征。既往研究表明, 耳垂皱褶与心血管疾病有关, 但具体机制尚未完全明确^[18]。

SHMILOVICH 等^[19]通过对 430 名既往无冠心病病史者行冠状动脉 CT 检查发现, 耳垂皱褶与冠心病发生率、血管病变程度及疾病严重程度呈正相关。本研究结果显示, 单侧和双侧耳垂皱褶者冠心病发生率高于无耳垂皱褶者, Gensini 积分高于无耳垂皱褶者, 提示耳垂皱褶与冠心病及冠状动脉狭窄程度有关。本研究进一步

表 1 无、单侧、双侧耳垂皱褶者一般资料、实验室检查指标、冠心病发生情况及 Gensini 积分比较

Table 1 Comparison of general information, laboratory examination results, incidence of coronary heart disease and Gensini score in subjects with different earlobe creases status

耳垂皱褶	例数	年龄 ($\bar{x} \pm s$, 岁)	男性 [n (%)]	吸烟 [n (%)]	收缩压 [$M(QR)$, mm Hg]	舒张压 [$M(QR)$, mm Hg]	空腹血糖 [$M(QR)$, mmol/L]
无	146	58.2 ± 9.8	92 (63.0)	50 (34.2)	129 (20)	78 (15)	5.20 (1.29)
单侧	71	63.0 ± 9.7 ^a	57 (80.3) ^a	33 (46.5)	133 (30) ^a	80 (12)	5.34 (1.25)
双侧	226	66.9 ± 9.7 ^a	167 (73.9) ^a	86 (38.1)	131 (24) ^a	80 (15)	5.27 (1.54)
检验统计量值		35.109 ^c	8.446 ^d	3.031 ^d	6.398	0.201	1.148
P 值		<0.001	0.015	0.220	0.041	0.905	0.563

耳垂皱褶	总胆固醇 [$M(QR)$, mmol/L]	三酰甘油 [$M(QR)$, mmol/L]	高密度脂蛋白 [$M(QR)$, mmol/L]	低密度脂蛋白 ($\bar{x} \pm s$, mmol/L)	冠心病 [n (%)]	Gensini 积分 [$M(QR)$, 分]
无	4.11 (1.39)	1.40 (1.12)	1.02 (0.32)	2.55 ± 0.78	86 (58.9)	9.5 (30.5)
单侧	4.13 (1.49)	1.56 (0.92)	0.99 (0.30)	2.61 ± 0.79	61 (86.0) ^a	34.0 (49.5) ^a
双侧	3.95 (1.48)	1.51 (0.98)	1.00 (0.31)	2.52 ± 0.79	206 (91.1) ^{ab}	34.0 (51.5) ^{ab}
检验统计量值	0.591	3.203	2.827	0.676 ^c	59.001 ^d	41.631
P 值	0.744	0.202	0.243	0.713	<0.001	<0.001

注: 与无耳垂皱褶者比较, ^a $P < 0.05$; 与单侧耳垂皱褶者比较, ^b $P < 0.05$; ^c为 F 值, ^d为 χ^2 值, 余检验统计量值为 Z 值; 1 mm Hg=0.133 kPa

表 2 有无冠心病者一般资料、实验室检查指标及耳垂皱褶情况比较

Table 2 Comparison of general information, laboratory examination results and earlobe creases status in subjects with coronary heart disease or not

冠心病	例数	年龄 ($\bar{x} \pm s$, 岁)	男性 [n (%)]	吸烟 [n (%)]	收缩压 [$M(QR)$, mm Hg]	舒张压 [$M(QR)$, mm Hg]	空腹血糖 [$M(QR)$, mmol/L]
有	90	61.4 ± 9.5	46 (51.1)	22 (24.4)	128 (20)	80 (11)	5.15 (1.09)
无	353	63.9 ± 10.6	270 (76.5)	147 (41.6)	130 (25)	78 (15)	5.28 (1.58)
检验统计量值		-2.047 ^a	22.583 ^b	8.990 ^b	-1.316	-0.023	-1.732
P 值		0.041	0.001	0.003	0.188	0.982	0.083

冠心病	总胆固醇 [$M(QR)$, mmol/L]	三酰甘油 [$M(QR)$, mmol/L]	高密度脂蛋白 [$M(QR)$, mmol/L]	低密度脂蛋白 ($\bar{x} \pm s$, mmol/L)	耳垂皱褶情况 (例)		
					无	单侧	双侧
有	3.95 (1.44)	1.54 (1.19)	1.02 (0.37)	2.44 ± 0.76	60	10	20
无	4.08 (1.47)	1.45 (0.95)	1.00 (0.30)	2.57 ± 0.79	86	61	206
检验统计量值	-0.465	-0.373	-1.096	-1.466 ^a	59.001 ^b		
P 值	0.642	0.709	0.273	0.143	<0.001		

注: ^a 为 t 值, ^b 为 χ^2 值, 余检验统计量值为 Z 值

表 3 变量赋值
Table 3 Variable assignment

变量	赋值
年龄	实测值
性别	男 = 0, 女 = 1
吸烟	无 = 0, 有 = 1
耳垂皱褶情况	无 = 0, 单侧 = 1, 双侧 = 2
冠心病	无 = 0, 有 = 1

表 4 冠心病影响因素的多因素 Logistic 回归分析

Table 4 Multivariate Logistic regression analysis on influencing factors of coronary heart disease

变量	β	SE	Wald χ^2 值	OR (95%CI)	P 值
年龄	-0.020	0.024	0.694	0.998 (0.971, 1.025)	0.862
性别	-1.019	0.245	17.299	0.361 (0.215, 0.607)	<0.001
吸烟	0.357	0.327	1.191	1.429 (0.754, 2.711)	0.274
单侧耳垂皱褶 ^a	1.322	0.252	27.520	3.752 (1.751, 8.037)	<0.001
双侧耳垂皱褶 ^a	1.929	0.256	56.779	6.880 (3.863, 12.255)	<0.001

注: ^a 以无耳垂皱褶为参照

表 5 男性冠心病影响因素的多因素 Logistic 回归分析

Table 5 Multivariate Logistic regression analysis on influencing factors of coronary heart disease in males

变量	β	SE	Wald χ^2 值	OR (95%CI)	P 值
年龄	0.017	0.017	0.993	1.017 (0.984, 1.051)	0.319
吸烟	0.303	0.339	0.801	1.354 (0.697, 2.633)	0.371
单侧耳垂皱褶 ^a	1.325	0.733	6.792	3.763 (1.445, 9.801)	0.007
双侧耳垂皱褶 ^a	1.751	0.376	21.687	5.758 (2.753, 12.042)	<0.001

注: ^a 以无耳垂皱褶为参照

表 6 女性冠心病影响因素的多因素 Logistic 回归分析

Table 6 Multivariate Logistic regression analysis on influencing factors of coronary heart disease in females

变量	β	SE	Wald χ^2 值	OR (95%CI)	P 值
年龄	-0.031	0.026	1.422	0.969 (0.922, 1.019)	0.224
吸烟	0.186	1.197	0.024	1.205 (0.115, 12.57)	0.876
单侧耳垂皱褶 ^a	1.291	0.376	11.788	3.636 (1.011, 13.093)	<0.001
双侧耳垂皱褶 ^a	2.187	0.477	21.021	8.909 (3.537, 22.439)	<0.001

注: ^a 以无耳垂皱褶为参照

行多因素 Logistic 回归分析结果显示, 双侧耳垂皱褶者发生冠心病的风险是无耳垂皱褶者的 6.880 倍, 单侧耳垂皱褶者发生冠心病的风险是无耳垂皱褶者的 3.752 倍, 提示双侧耳垂皱褶者冠心病发生风险高于单侧耳垂皱褶者, 且根据性别进行的亚组分析结果支持上述结论。丁进等^[20] 研究结果显示, 耳垂皱褶对女性冠心病的预测价值更高; CELIK 等^[21] 研究结果发现, 耳垂皱褶与年龄、性别密切相关; 本研究结果显示, 女性双侧耳垂皱褶者发生冠心病的风险是无耳垂皱褶者的 8.909 倍, 男性双侧耳垂皱褶者发生冠心病的风险是无耳垂皱褶者的 5.758 倍, 提示女性耳垂皱褶者冠心病发生风险更高。

目前, 尽管多数研究证实耳垂皱褶与冠心病有关, 但其潜在的病理生理学机制尚不清楚。陈万春等^[22] 认为, 耳垂皱褶是人体老化的标志。耳垂微血管活检结果显示, 耳垂皱褶者耳垂中胶原纤维和弹性纤维大量丢失, 当冠状动脉硬化时耳垂血管会发生微循环障碍, 进而导致皮肤及组织老化, 胶原纤维、弹性纤维的萎缩和断裂, 进一步发生耳垂折痕^[23-24]。

综上所述, 单侧、双侧耳垂皱褶是冠心病的独立影

响因素, 双侧耳垂皱褶者冠心病发生风险高于单侧耳垂皱褶者, 且耳垂皱褶与冠状动脉狭窄程度有关; 但本研究为单中心研究且样本量较小, 耳垂皱褶与冠心病的具体关系及相关机制等仍需进一步研究证实。

作者贡献: 王用、贾恩志进行文章的构思与设计, 研究的实施与可行性分析, 负责文章的质量控制及审校, 对文章整体负责, 监督管理; 王用、李朝阳进行数据收集、整理、分析; 王用、贾恩志、李朝阳进行结果分析与解释; 王用撰写论文。

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