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心电图 ST 段不同改变与急性心肌梗死患者冠脉造影病变特点及生活质量的相关性研究 *

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摘要 目的:探讨心电图 ST 段不同改变与急性心肌梗死患者冠脉造影病变特点及生活质量的相关性。**方法:**选取选取 2015 年 6 月到 2017 年 6 月在本院接受治疗的急性心肌梗死患者 208 例,根据心电图 ST 段的改变情况将患者分为 ST 段抬高组(124 例)、ST 段压低组(64 例)、ST 段无偏移组(20 例),所有患者进行冠脉造影检查和常规治疗,比较治疗前三组患者的冠脉造影情况和冠脉狭窄程度,比较治疗 1 个月后三组患者的生活质量评分。**结果:**在 ST 段抬高组中,共检测出单支血管闭塞病变 99 例,占 79.84%,两支或两支以上血管病变 25 例,占 20.16%,其中侧支循环开放 19 例,开放率为 15.32%。在 ST 段压低组中,共检测出单支血管非闭塞病变 6 例,占 9.38%,两支或两支以上血管非闭塞病变 56 例,占 87.50%,单支血管闭塞病变 2 例,占 3.13%,其中侧支循环开放 34 例,开放率为 53.13%。在 ST 段无偏移组中,单支血管闭塞病变 15 例,占 75.00%,单支或多支血管非闭塞病变 5 例,占 25.00%,其中侧支循环开放 7 例,开放率为 35.00%。ST 段抬高组、ST 段无偏移组患者的冠脉狭窄程度以重度狭窄为主,ST 段压低组患者的冠脉狭窄程度以中度狭窄为主,三组患者的轻度狭窄、中度狭窄、重度狭窄整体比较存在统计学差异($P<0.05$)。三组患者的疼痛评分、躯体受限评分、精神及活动评分整体比较具有统计学差异($P<0.05$),ST 段压低组的上述评分均显著高于 ST 段抬高组和 ST 段无偏移组($P<0.05$)。**结论:**心电图 ST 段不同改变与急性心肌梗死患者冠脉造影病变密切相关,且 ST 段压低患者的预后通常较好。

关键词:急性心肌梗死;心电图 ST 段;冠脉造影;生活质量;相关性

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Correlation Between Different Changes in ST Segment of ECG and Angiographic Characteristics and Quality of Life in Patients with Acute Myocardial Infarction*

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ABSTRACT Objective: To investigate the correlation between changes in ST segment of ECG and characteristics of coronary angiographic and quality of life in patients with acute myocardial infarction. **Methods:** 208 patients with acute myocardial infarction who were treated in our hospital from June 2015 to June 2017 were selected, and they were divided into ST segment elevation group (124 cases), ST segment depression group (64 cases), ST segment non deviation group (20 cases) according to the changes of in ST segment of ECG, all patients were underwent coronary angiography and routine treatment. The coronary angiography and the degree of coronary stenosis were compared between the three groups before treatment, and the quality of life scores were compared between the three groups 1 months after treatment. **Results:** In the ST segment elevation group, 99 cases with single vessel occlusion were detected, accounting for 79.84%, 25 cases with two or more than two vascular lesions, accounting for 20.16%, of which 19 cases were open collateral circulation, the opening rate was 15.32%. In the ST segment depression group, 6 cases with non occluded arteries were detected, accounting for 9.38%, 56 cases with two or more than two vascular non occlusive lesions, accounting for 87.50%, 2 cases with single vessel occlusion lesions, accounting for 3.13%, of which 34 cases were open collateral circulation, the opening rate was 53.13%. In the ST segment non deviation group, 15 cases with single vessel occlusion were detected, accounting for 75%, 5 cases with single or multi vessel non occlusive lesions, accounting for 25%, of which 34 cases were open collateral circulation, and the opening rate was 35.00%. The degree of coronary stenosis in ST segment elevation group and ST segment non deviation group was mainly severe stenosis, the degree of coronary stenosis in ST segment depression was mainly moderate stenosis, and overall comparison of mild stenosis, moderate stenosis, severe stenosis in patients of three groups was statistically significant ($P<0.05$). Overall comparison of pain score, physical confinement score, mental and activity score of patients in three groups were statistically significant ($P<0.05$), the above scores of ST segment depression

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group were significantly higher than those of ST segment elevation group and ST segment non deviation group ($P<0.05$). **Conclusion:** The different changes in ST segment of ECG are closely related to the coronary angiographic lesions in patients with acute myocardial infarction, and the prognosis of patients with ST segment depression is better.

Key words: Acute myocardial infarction; ECG ST segment; Coronary angiography; Quality of life; Correlation

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前言

急性心肌梗死是心血管内科常见的疾病,主要由冠状动脉急性、持续性缺血缺氧引发,多数患者表现为突然性发生剧烈而持久的胸骨后或心前区压榨性疼痛,可并发心律失常、恶心、呕吐等,严重时可能出现休克或心力衰竭,对患者的生命健康构成巨大的威胁^[1,2]。心电图检测是评估急性心肌梗死患者病情的重要检查手段,心电图 ST 段是指 QRS 波群 J 点至 T 波开始之间的线条区域,ST 段是心室复极的初始阶段,正常情况下接近于等电位线,而心功能异常的患者心电图通常表现为 ST 段抬高和非 ST 段抬高^[3,4]。心电图 ST 段的改变情况决定了急性心肌梗死患者的治疗方向^[5]。研究认为^[6,7],ST 段抬高型急性心肌梗死患者的病变血管存在闭塞或严重阻塞的情况,血栓主要成分是纤维蛋白,适合采用溶栓治疗,而非 ST 段抬高型急性心肌梗死患者的血栓主要成分为血小板,纤维蛋白较少,适合采用抗凝、抗血小板治疗。然而近年来有研究显示^[8],非 ST 段抬高型急性心肌梗死患者也存在闭塞或严重阻塞病变血管,这说明并不能完全通过 ST 段抬高与否来确定病变血管类型和血栓主要成分,而三者之间的具体联系还有待进一步的考证。生活质量是急性心肌梗死患者预后情况的重要衡量指标,其与患者的病情严重程度密切相关^[9,10]。本研究旨在探讨心电图 ST 段不同改变与急性心肌梗死患者冠脉造影病变特点及生活质量的相关性,以明确 ST 段抬高与否和病变血管类型的关系及其对预后的评估价值,现报道如下。

1 资料与方法

1.1 临床资料

选取 2015 年 6 月到 2017 年 6 月在本院接受治疗的急性心肌梗死患者 208 例,纳入标准:(1)所有患者均符合中华医学会心血管病学分会制定的《急性心肌梗死诊断和治疗指南》中的相关标准^[11];(2)发病 12 h 内入院;(3)均接受了心电图和冠脉造影检查;(4)临床资料完整;(5)患者及其家属对本研究知情同意。排除标准:(1)6 个月内做过大型手术者;(2)合并严重脑血管疾病者;(3)严重心律失常、休克、心力衰竭者;(4)伴有出血性疾病、严重感染者。所有患者入院后采用心电图检测仪(GE 公司,MAC1200)进行心电图检查,并根据心电图 ST 段的改变情况将患者分为 ST 段抬高组(124 例)、ST 段压低组(64 例)、ST 段无偏移组(20 例),其具体判断标准如下:(1)取相邻的两个导联,将 AVR 导联排除,ST 段抬高幅度 ≥ 0.1 mV;(2)导联处于 V1-3,ST 段抬高幅度 >0.3 mV;(3)AVR 导联中,ST 段抬高幅度 ≥ 0.05 mV;(4)ST 段压低幅度 ≥ 0.05 mV;(5)相邻的两个导联的 T 波 $<$ 对应导联中的 R 波 1/10;以上标准中,符合(1)、(2)、(3)中的任意一条即可判定为 ST 段抬高,符合(4)、

(5)中的任意一条即可判定为 ST 段压低。ST 段抬高组男 84 例,女 40 例,年龄 37-73 岁,平均 (58.9 ± 5.6) 岁;ST 段压低组男 42 例,女 22 例,年龄 33-76 岁,平均 (60.2 ± 5.8) 岁;ST 段无偏移组男 14 例,女 6 例,年龄 35-71 岁,平均 (59.4 ± 6.3) 岁。三组患者的临床资料无统计学差异($P>0.05$),具有可比性。本研究已获得医院伦理委员会的批准。

1.2 冠脉造影检查

治疗前采用数字减影心血管造影机(GE 公司,INNOVA 2000)进行对所有患者进行冠状动脉造影检查,观察血管为一级冠状动脉血管,冠脉狭窄程度判定如下:狭窄程度 $<50\%$ 则定为无明显狭窄, $50\% \leq$ 狭窄程度 $<75\%$ 则定为轻度狭窄, $75\% \leq$ 狭窄程度 $<90\%$ 则定为中度狭窄,狭窄程度 $\geq 90\%$ 则定为重度狭窄。

1.3 治疗方法及生活质量评估

所有患者均给予经皮冠状动脉介入治疗,并根据患者的病情应用氯吡格雷、阿司匹林、低分子肝素、他汀类等药物进行抗血小板、抗凝、调脂治疗。治疗 1 个月后,采用西雅图心绞痛调查问卷对患者进行生活质量评估,其中部分与心绞痛直接相关的项目针对急性心肌梗死做适当调整,该问卷主要包括疼痛、躯体受限、精神及活动三个方面,每个方面的总分均为 100 分,得分越高代表生活质量越好。

1.4 统计学方法

采用 SPSS22.0 进行统计分析,计数资料以率(%)表示,进行 χ^2 检验,计量资料以均值 $\pm$ 标准差($\bar{x} \pm s$)表示,多组间比较采用单因素方差分析,两两比较进行 t 检验,以 $P<0.05$ 为差异有统计学意义。

2 结果

2.1 心电图 ST 段不同改变与患者的冠脉造影情况

在 ST 段抬高组 124 例患者中,共检测出单支血管闭塞病变 99 例,占 79.84%,两支或两支以上血管病变 25 例,占 20.16%,其中侧支循环开放 19 例,开放率为 15.32%。在 ST 段压低组 64 例患者中,共检测出单支血管非闭塞病变 6 例,占 9.38%,两支或两支以上血管非闭塞病变 56 例,占 87.50%,单支血管闭塞病变 2 例,占 3.13%,其中侧支循环开放 34 例,开放率为 53.13%。在 ST 段无偏移组 20 例患者中,单支血管闭塞病变 15 例,占 75.00%,单支或多支血管非闭塞病变 5 例,占 25.00%,其中侧支循环开放 7 例,开放率为 35.00%。

2.2 心电图 ST 段不同改变与患者的冠脉狭窄程度比较

ST 段抬高组、ST 段无偏移组患者的冠脉狭窄程度以重度狭窄为主,ST 段压低组患者的冠脉狭窄程度以中度狭窄为主,三组患者的轻度狭窄、中度狭窄、重度狭窄整体比较存在统计学差异($P<0.05$),ST 段无偏移组的轻度狭窄低于 ST 段抬高组

和 ST 段压低组 ($P<0.05$), ST 段压低组的中度狭窄高于 ST 段抬高组和 ST 段无偏移组 ($P<0.05$), ST 段无偏移组的重度狭窄高于 ST 段抬高组和 ST 段压低组, ST 段抬高组的重度狭窄高于 ST 段压低组 ($P<0.05$)。具体见表 1。

表 1 心电图 ST 段不同改变与患者的冠脉狭窄程度比较[n(%)]

Table 1 Comparison of the difference of ST segment of ECG and the degree of coronary stenosis in patients [n(%)]

Groups	n	Mild stenosis	Moderate stenosis	Severe stenosis
ST segment elevation group	124	19(15.32)	24(19.36) [#]	81(65.32) [#]
ST segment depression group	64	10(15.63)	33(51.56)	21(32.81)
ST segment non deviation group	20	1(5.00)* [#]	3(15.00) [#]	16(80.00)* [#]
χ^2		8.642	9.364	12.362
P		0.000	0.000	0.000

Note: compared with the ST segment elevation group, * $P<0.05$; compared with the ST segment depression group, [#] $P<0.05$.

2.3 心电图 ST 段不同改变与患者的生活质量比较

三组患者的疼痛评分、躯体受限评分、精神及活动评分整体比较具有统计学差异 ($P<0.05$), ST 段压低组的疼痛评分、躯

体受限评分、精神及活动评分均显著高于 ST 段抬高组和 ST 段无偏移组 ($P<0.05$), 具体见表 2。

表 2 心电图 ST 段不同改变与患者的生活质量比较

Table 2 Comparison of changes in ST segment of ECG and patients' quality of life

Groups	n	Pain score	Physical restricted score	Mental and activity score
ST segment elevation group	124	61.36± 11.23 [#]	54.33± 9.97 [#]	42.63± 12.69 [#]
ST segment depression group	64	89.24± 5.67	90.12± 4.33	83.64± 8.81
ST segment non deviation group	20	60.14± 10.52 [#]	55.62± 10.36 [#]	41.32± 11.65 [#]
F		182.066	373.037	282.630
P		0.000	0.000	0.000

Note: compared with ST segment depression group, [#] $P<0.05$.

3 讨论

急性心肌梗死是造成心血管疾病患者死亡的重要疾病,具有起病急、进展快、预后差等特点,疾病的危险程度较高,在发病早期给予准确有效的诊断,采用合理及时的治疗方式对急性心肌梗死患者具有重要的意义^[12-14]。心电图检查是急性心肌梗死的主要鉴别、诊断依据之一,具有较高的敏感度和特异性,并且无创、便捷、重复性好,目前已成为临床上最常用的诊断急性心肌梗死的方式^[15-17]。冠脉造影检查是诊断冠心病的金标准^[18],在急性心肌梗死的诊断治疗中也有重要的应用,在注入造影剂后可通过血管造影机使得冠状动脉显影,影像可显示整个冠状动脉的主干及其分支的血管腔的情况,进而能够明确血管是否狭窄,对病变位置、严重程度、血管壁的情况等作出准确的判断,对于介入治疗有重要的指导意义^[19,20]。

本研究结果显示,ST 段抬高组多为单支血管闭塞病变,且侧支循环开放率较低,而 ST 段压低组多为两支或两支以上血管非闭塞病变,且侧支循环开放率较高,ST 段无偏移组多为单支血管闭塞病变,侧支循环开放率处于 ST 段抬高组与 ST 段压低组之间,这说明 ST 段不同改变与患者的冠脉造影病变特点有所不同,值得注意的是 ST 段压低组存在 2 例闭塞性病变,这说明虽然 ST 段抬高与否和病变血管是否闭塞关系密切,但并不是绝对的,临床上可将 ST 段抬高与否作为评估病变血管是否闭塞的指标。另外本研究还显示,ST 段抬高组、ST 段无偏

移组患者的冠脉狭窄程度以重度狭窄为主,ST 段压低组患者的冠脉狭窄程度以中度狭窄为主,三组患者的轻度狭窄、中度狭窄、重度狭窄整体比较存在统计学差异 ($P<0.05$),这说明 ST 段不同改变与患者的冠脉狭窄程度存在相关性。ST 段抬高与否和心肌的缺血及坏死程度有直接的关联,而心肌的缺血及坏死程度与血管狭窄程度和持续时间密切相关^[21-23],同时较高的侧支循环开放率可缓解缺血程度^[24],因此 ST 段的改变情况可在一定程度上反映冠脉狭窄程度。急性心肌梗死患者预后较差,寻找评估患者预后的相关指标至关重要,王静等人的研究显示^[25],心电图 QRS 波群时限与急性心肌梗死患者的预后密切相关,而 ST 段作为心电图的主要参数,其改变程度与患者的预后同样密切相关^[26,27],本研究结果显示,三组患者的疼痛评分、躯体受限评分、精神及活动评分整体比较具有统计学差异 ($P<0.05$),ST 段压低组的疼痛评分、躯体受限评分、精神及活动评分均显著高于 ST 段抬高组和 ST 段无偏移组 ($P<0.05$),这说明 ST 段不同改变与患者的生活质量存在明显差异,其中以 ST 段压低患者的生活质量最好。分析其中原因,ST 段压低患者其病变血管多为非闭塞病变,且侧支循环开放率高,因此其心肌缺血的程度要更低,心肌受到的缺血性损伤也更小^[28-30],因此 ST 段压低患者的心功能受损程度更小,生活质量更好。

综上所述,心电图 ST 段不同改变与急性心肌梗死患者冠脉造影病变情况、冠脉狭窄程度关系密切,且 ST 段压低患者的预后通常较好,临床上可通过观察急性心肌梗死患者心电图

ST 段的变化情况来评估患者的冠脉狭窄程度和预后。

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