

心肌梗死患者血清神经营养素受体 P75 水平与其预后的相关性^{*}

武汉科技大学附属孝感医院 胡威 李朋 李睿^{*} 易日霞 李屏 金秀 汪琦, 孝感 432000

摘要 目的:探讨心肌梗死后血清中神经营养素受体 P75 (P75NTR) 水平对预后的判断价值。方法:选取 110 例心肌梗死后发生慢性心力衰竭患者为观察组,另选取同期住院 110 例心肌梗死无慢性心力衰竭患者为对照组。采用 ELISA 法检测 2 组患者血清中 P75NTR 水平,采用超声心动图检测 2 组患者心功能相关指标,相关性分析采用 Pearson 分析法。结果:观察组患者血清 P75NTR 水平明显高于对照组 [$(12.76 \pm 2.57) \text{ ng/mL}$ vs $(9.68 \pm 2.23) \text{ ng/mL}$, $P < 0.05$];左心室射血分数 (LVEF) 低于对照组 [$(41.86 \pm 5.23) \%$ vs $(48.73 \pm 7.24) \%$, $P < 0.05$];左心室舒张末期内径 (LVEDD) 明显高于对照组 [$(61.96 \pm 6.93) \text{ mm}$ vs $(58.03 \pm 4.85) \text{ mm}$, $P < 0.05$]。2 组在心肌梗死后 LVEF 下降性 (LVEF $\leq 40\%$) 和保留性 (LVEF $> 40\%$) 慢性心力衰竭患者血清 P75NTR 水平及左心室短轴缩短率 (FS)、LVEDD、左心房内径 (LAD) 比较差异均有统计学意义 (均 $P < 0.05$)。观察组患者血清中 P75NTR 水平与 LVEF、左心室 FS 呈负相关 ($P < 0.05$),与 LVEDD、LAD 呈正相关 ($P < 0.05$),而对照组患者血清中 P75NTR 水平与其心功能指标无明显相关性 ($P > 0.05$)。结论:心肌梗死预后不良患者血清中 P75NTR 水平升高,其与患者心功能存在相关性,对临床评估该类患者的病情具有重要作用。

关键词 神经营养素受体 P75; 心肌梗死; 慢性心力衰竭; 心功能

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Correlation between serum neurotrophin receptor P75 level and prognosis in patients with myocardial infarction

HU Wei, LI Peng, LI Rui^{*}, YI Ri-xia, LI Ping, JIN Xiu, WANG Qi. Xiaogan Hospital Affiliated to Wuhan University of Science and Technology, Xiaogan 432000, China

Abstract Objective: To investigate the prognostic value of serum neurotrophin receptor P75 (P75NTR) after myocardial infarction. Methods: 110 patients with chronic heart failure after myocardial infarction were selected as observation group. In addition, 110 patients with myocardial infarction and no chronic heart failure admitted to our hospital were selected as the control group. The serum levels of P75NTR in the two groups were detected by ELISA. The cardiac function-related indexes in the two groups were measured by echocardiography. Correlation analysis was performed by Pearson analysis. Results: Serum P75NTR levels in the observation group were significantly higher than those in the control group [$(12.76 \pm 2.57) \text{ ng/mL}$ vs $(9.68 \pm 2.23) \text{ ng/mL}$ ($P < 0.05$)]. The left ventricular ejection fraction (LVEF) was significantly lower in the observation group than in the control group [$(41.86 \pm 5.23) \%$ vs $(48.73 \pm 7.24) \%$, $P < 0.05$]. The left ventricular end-diastolic diameter (LVEDD) was significantly greater in the observation group than in the control group [$(61.96 \pm 6.93) \text{ mm}$ vs $(58.03 \pm 4.85) \text{ mm}$, $P < 0.05$]. The difference in serum P75NTR levels, left ventricular fractional shortening (FS), LVEDD and left atrial diameter (LAD) was statistically significant in patients with chronic heart failure after LVEF decline (LVEF $\leq 40\%$) and retention (LVEF $> 40\%$) after myocardial infarction ($P < 0.05$). In the observation group, the serum P75NTR level was negatively correlated with LVEF and left ventricular FS ($P < 0.05$), and positively correlated with LVEDD and LAD ($P < 0.05$). There was no significant correlation between serum P75NTR level and cardiac function in the control group ($P > 0.05$). Conclusion: The expression of P75NTR in serum of myocardial infarction patients with poor prognosis is increased, which is related to the cardiac function of patients. It plays an important role in clinical evaluation of the illness condition of these patients.

Key words Neurotrophin receptor P75; Myocardial infarction; Chronic heart failure; Cardiac function

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^{*}通信作者:李睿, E-mail: hwhd611@163.com

心肌梗死并发心力衰竭严重威胁着患者的生命健康^[1,2]。近年来,有研究报道,P75NTR 在心血管疾病的发生发展中起到重要作用^[3],可反映患者心肌重构的活性,或将成为心脏相关疾病临床诊断的一个新指标^[4,5]。本研究分析心肌梗死患者血清中神经营养受体 P75(P75NTR)的水平与其预后的相关性,旨在为临床诊疗提供参考。

资料与方法

一般资料 选取 2017 年 7 月~2018 年 1 月孝感市中心医院收治的 110 例心肌梗死后预后不良发生慢性心力衰竭患者为观察组,其中,男性 65 例,女性 45 例,年龄 47~81 岁,平均年龄(62.7±4.1)岁,均有心肌梗死病史且均经心电图证实,按照纽约心脏病协会(New York Heart Association, NYHA)心功能分级:Ⅱ级 61 例,Ⅲ级 49 例。另选取同期住院 110 例心肌梗死无慢性心力衰竭患者为对照组。纳入标准:①临床表现为加拿大心血管学会(Canadian Cardiovascular Society, CCS)心肌梗死患者;②年龄 20~85 岁。排除标准:合并严重肝肾功能障碍者、恶性肿瘤者、糖尿病者、甲状腺疾病者及心脏相关手术史者、既往先天性心脏病、风湿性心脏病、扩张型及肥厚型心肌病、急性感染、损伤、风湿活动、恶性肿瘤、肝肾功能不全、活动性炎性肌病及传染性疾病、精神疾病等。

方法 采集 2 组患者空腹静脉血 8 mL,其中 3 mL 于采集 30 min 内进行离心处理(德国 IKA 公司离心机,型号:mini G Centrifuge),取上清液置于-70℃的冰箱中保存待检。应用酶联免疫吸附试验法测定患者血清 P75NTR 水平,试剂盒购于武汉华美生物科技有限公司。另 5 mL 血液标本送至本院实验室检测总胆固醇、甘油三酯、肌酐及血糖等水平。在同一个时间段,患者取左侧卧位,采用超声诊

断仪(飞利浦,型号:iE33)进行超声心动图检测,选用 S5-1(频率:1~5 MHz)心脏探头应用辛普森法于心尖四腔心切面测定左心室射血分数(left ventricular ejection fraction, LVEF)和左心室短轴缩短率(fractional shortening, FS),于胸骨旁左心室长轴切面测定患者左心室舒张末期内径(left ventricular end-diastolic diameter, LVEDD)和左心房内径(left atrial diameter, LAD)。

统计学处理 采用 SPSS 19.0 统计学软件,符合正态分布的计量资料以($\bar{x} \pm s$)表示,组间比较采用 *t* 检验;计数资料以百分数(%)表示,组间比较采用 χ^2 检验;采用 Pearson 分析血清 P75NTR 水平与患者心功能指标的相关性。以 *P* < 0.05 为差异有统计学意义。

结 果

血清 P75NTR 水平及心功能指标 观察组患者血清 P75NTR 水平明显高于对照组,LVEF 明显低于对照组, LVEDD 明显高于对照组(*P* < 0.05),而 2 组患者左心室 FS 和 LAD 比较差异无明显统计学意义(均 *P* > 0.05),见表 1。

基于 LVEF 分析 P75NTR 指标的表达式 观察组中,49 例患者 LVEF 下降(LVEF ≤ 40%),61 例患者 LVEF 保留性慢性心力衰竭(LVEF > 40%),2 组 P75NTR、左心室 FS、LVEDD 及 LAD 比较差异均有统计学意义(均 *P* < 0.05),见表 2。

血清 P75NTR 水平与慢性心力衰竭患者心功能的相关性分析 Pearson 相关性分析结果提示,观察组 P75NTR 水平与 LVEF、左心室 FS 呈负相关(均 *P* < 0.05),与 LVEDD、LAD 呈正相关(均 *P* < 0.05)。对照组 P75NTR 水平与 LVEF、左心室 FS、LVEDD 及 LAD 无明显相关性(均 *P* > 0.05),见表 3。

表 1 2 组患者血清 P75NTR 水平及心功能指标比较 ($\bar{x} \pm s$)

组别	例	P75NTR(ng/mL)	LVEF(%)	FS(%)	LVEDD(mm)	LAD(mm)
对照组	110	9.68±2.23	48.73±7.24	20.54±3.67	58.03±4.85	34.96±2.64
观察组	110	12.76±2.57*	41.86±5.23*	19.65±4.38	61.96±6.93*	35.06±4.25

注:与对照组比较,**P* < 0.05

表 2 基于 LVEF 分析 P75NTR 指标的表达式 ($\bar{x} \pm s$)

组别	例	P75NTR(ng/mL)	FS(%)	LVEDD(mm)	LAD(mm)
LVEF≤40%组	49	13.76±3.12	17.98±3.74	64.56±4.38	36.87±2.65
LVEF>40%组	61	11.42±2.29*	21.73±2.41*	61.02±5.48*	34.64±4.77*

注:与 LVEF≤40%组比较,**P* < 0.05

表 3 2 组血清 P75NTR 水平与慢性心力衰竭患者心功能的相关性分析

组别	LVEF	FS	LVEDD	LAD
观察组				
<i>r</i>	-0.732	-0.407	0.528	0.365
<i>P</i>	0.008	0.035	0.011	0.042
对照组				
<i>r</i>	0.051	-0.094	0.069	0.073
<i>P</i>	0.447	0.183	0.398	0.315

讨 论

心肌梗死后慢性心力衰竭患者存在明确的心肌严重受损病史^[6],因此,利用血清标记物进行心力衰竭的早期识别和诊断,利于评估患者预后^[7~9]。P75NTR 主要调节交感神经的发育和稳定,对交感神经纤维的分布具有一定影响,近年来被发现与多种疾病的发生发展密切相关^[10]。

目前已有研究证实,P75NTR 与心肌纤维化和心室重构存在一定的相关性,研究发现心功能状态不良的患者血清中 P75NTR 水平明显高于健康对照组,提示 P75NTR 与心功能损伤密切相关^[11~13],但目前临床对 P75NTR 在心肌梗死后预后不良伴心力衰竭患者血清中的表达水平及其与患者心功能的相关性方面报道较少^[14,15]。本研究发现,观察组患者血清 P75NTR 水平明显高于对照组。观察组患者 LVEF 明显低于对照组,LVEDD 明显高于对照组。Pearson 分析发现,心肌梗死预后不良患者的血清中 P75NTR 水平与 LVEF、左心室 FS 呈负相关,与 LVEDD、LAD 呈正相关。这说明 P75NTR 可反应患者心脏结构的改变,对于评估心肌梗死预后不良发生慢性心力衰竭患者具有重要意义。

本研究表明,心肌梗死后 LVEF 下降性(LVEF ≤40%)和保留性(LVEF >40%)心肌梗死预后不良患者血清 P75NTR 水平及左心室 FS、LVEDD、LAD 比较差异明显。P75NTR 或将成为慢性心力衰竭患者的一项重要心肌标记物。

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