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实时和间歇触发心肌声学造影评价小型猪心肌无复流现象对比观察

Comparison of real-time and intermittent triggered myocardial contrast echocardiography in evaluation of mini-swine myocardial no-reflow phenomenon

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中文关键词: [超声检查](#), [介入性](#), [超声心动描记术](#), [三维](#), [动物实验](#)

英文关键词: [Ultrasonography](#), [interventional](#), [Echocardiography](#), [three-dimensional](#), [Animal experimentation](#)

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作者	单位	E-mail
李爱莉	卫生部中日友好医院心血管病中心,北京 100029	
柯元南	卫生部中日友好医院心血管病中心,北京 100029	keyuannan6666@yahoo.com.cn
李宪伦	卫生部中日友好医院心血管病中心,北京 100029	
杨鹏	卫生部中日友好医院心血管病中心,北京 100029	
彭文华	卫生部中日友好医院心血管病中心,北京 100029	
李靖	卫生部中日友好医院心血管病中心,北京 100029	
于长安	卫生部中日友好医院心血管病中心,北京 100029	

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中文摘要:

目的 比较实时心肌声学造影(RTMCE)和间歇触发心肌声学造影(ITMCE)检测急性心肌梗死再灌注后心肌无复流的准确率。方法 30只中华小型猪,通过心导管介入法建立急性心肌梗死再灌注模型。在基础状态、前降支闭塞2 h及开通后3 h分别行RTMCE和ITMCE。以冠状动脉闭塞2 h的心肌充盈缺损面积为危险区心肌面积(RA),再灌注3 h的心肌充盈缺损面积为无复流面积(NRA),计算二者比值(NRA/RA),并与病理染色确定的NRA/RA进行比较。结果 RTMCE、ITMCE和病理染色测定的NRA/RA分别为(47.94±21.29)%、(38.20±21.04)%和(30.07±14.62)%。其中ITMCE与病理染色、RTMCE与ITMCE测定的NRA/RA比值差异无统计学意义($P=0.124$ 、 0.071)。RTMCE、ITMCE均与病理染色程度呈正相关($r=0.700$ 、 $P<0.001$ 和 $r=0.765$ 、 $P<0.001$),RTMCE与ITMCE同样呈正相关($r=0.897$ 、 $P<0.001$)。RTMCE和ITMCE检测心肌无复流的灵敏度、特异度和准确率分别为100%、58.33%、79.17%和91.67%、73.33%、81.48%。结论 RTMCE和ITMCE可无创显示心肌灌注状态,并定量检测缺血再灌注后的心肌无复流现象。

英文摘要:

Objective To assess the value of real-time myocardial contrast echocardiography (RTMCE) and intermittent triggered myocardial contrast echocardiography (ITMCE) in the detection of myocardial no-reflow phenomenon after reperfusion in acute myocardial infarction on mini-swine models. **Methods** Thirty close-chest mini-swines were used to create acute myocardial infarction and reperfusion model through interventional method. RTMCE and ITMCE were performed at baseline, 2 h after occlusion of left anterior descending coronary artery and 3 h after reperfusion. The myocardial perfusion defects after occlusion was measured as risk area (RA) and that after reperfusion was measured as no-reflow area (NRA). NRA/RA was calculated and compared with pathological findings. **Results** The whole study protocol was successfully performed in 27 mini-swines. NRA/RA obtained from RTMCE, ITMCE and pathological staining was (47.94±21.29)%, (38.20±21.04)% and (30.07±14.62)%, respectively. NRA/RA had no significant difference by ITMCE and pathological staining ($P=0.124$), RTMCE and ITMCE ($P=0.071$). The correlation coefficient of RTMCE and staining was 0.700 ($P<0.001$), ITMCE and staining was 0.765 ($P<0.001$), RTMCE and ITMCE was 0.897 ($P<0.001$). The sensitivity, specificity and accuracy in the detection of myocardial no-reflow was 100%, 58.33% and 79.17% for RTMCE, 91.67%, 73.33% and 81.48% for ITMCE. **Conclusion** Both RTMCE and ITMCE could be used as noninvasive methods to reveal the myocardial perfusion and quantitatively detect myocardial no-reflow after reperfusion therapy.

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地址:北京市海淀区北四环西路21号大猷楼502室 邮政编码:100190 电话:010-82547901/2/3 传真:010-82547903

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