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整合素连接激酶对大鼠离体心脏缺血再灌注室性心

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Title: Effect of integrin-linked kinase on ventricular arrhythmia of *in vitro* rat ischemia reperfusion hearts

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关键词: 整合素连接激酶; 缺血再灌注; 室性心律失常
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摘要:

目的 探讨整合素连接激酶（integrin-linked kinase，ILK）在大鼠离体心脏缺血再灌注室性心律失常中的作用。 方法 将8～10周龄、体质量200～230 g的SPF级健康雄性SD大鼠采用Langendorff系统结扎冠脉左前降支建立缺血再灌注心律失常模型，予ILK活性调节剂预处理，监测大鼠缺血再灌注室性心律失常的变化。 结果 ①与缺血再灌注（I/R）组相比，I/R+ILK激动剂中、高浓度组（10^{-7} 、2×10^{-7} mol/L）室速（50.0% *vs* 87.5%、 50.0% *vs* 87.5%，*P*<0.05）、室颤发生率（12.5% *vs* 50.0%、12.5% *vs* 50.0%，*P*<0.05）及心律失常评分[（1.6±1.4）*vs*（3.3±1.3）、（1.5±1.5）*vs*（3.3±1.3）、*P*<0.05）]明显降低。②与I/R组相比，I/R+ILK抑制剂中、高浓度组（6×10^{-7}、1.2×10^{-6} mol/L）室颤发生率（87.5% *vs* 50.0%、87.5% *vs* 50.0%，*P*<0.05）及心律失常评分[（5.3±1.5）*vs*（3.3±1.3），（5.5±1.4）*vs*（3.3±1.3），*P*<0.05]明显增加。 结论 ILK参与大鼠缺血再灌注室性心律失常的发生，调节其活性可能成为再灌注室性心律失常的治疗手段。

Abstract: Objective To explore the role of integrin-linked kinase (ILK) in ventricular arrhythmia after ischemia-reperfusion(I/R) in isolated rat hearts.
Methods Male SD rats (SPF grade, 8-10 weeks old, weighing 200-230 g) were

subjected to 30 min of regional ischemia which induced by ligation of the left anterior descending coronary artery and then 30 min of reperfusion in the Langendorff apparatus. Surface electrocardiography (ECG) was used to observe arrhythmia continuously after pretreatment with ILK agonists and inhibitors. Results As compared to the I/R group, the I/R+ILK agonist groups (ILK agonist middle concentration group 10^{-7}mol/L and ILK agonist high concentration group 2×10^{-7}mol/L) showed reduced incidence of ventricular tachycardia (VT) (50.0% *vs* 87.5%, 50.0% *vs* 87.5%, respectively; both $P<0.05$) and ventricular fibrillation (VF) (12.5% *vs* 50.0%, 12.5% *vs* 50.0%, respectively; both $P<0.05$) as well as ventricular arrhythmia score (1.6 ± 1.4 *vs* 3.3 ± 1.3, 1.5 ± 1.5 *vs* 3.3 ± 1.3, respectively; both $P<0.05$) after reperfusion. In contrast, the IR+ILK inhibitor groups (ILK inhibitor middle concentration group 6×10^{-7}mol/L and ILK inhibitor high concentration group 1.2×10^{-6}mol/L) showed increased incidence of VF (87.5% *vs* 50.0%, 87.5% *vs* 50.0%, respectively; both $P<0.05$) and ventricular arrhythmia score (5.3 ± 1.5 *vs* 3.3 ± 1.3, 5.5 ± 1.4 *vs* 3.3 ± 1.3 respectively; both $P<0.05$) after reperfusion. Conclusion ILK plays an important role in I/R ventricular arrhythmia of isolated rat hearts. Regulating ILK activity may be a potential therapeutic measure for reperfusion ventricular arrhythmia.

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