preservation of myocardium by offering additional effect on modulating mPTP opening.

**Methods** Anesthetized open-chest rabbits underwent 1.5-h regional ischaemia/1.5-h reperfusion and were divided into four groups: control (C), preconditioning (Pre-con), gradual reperfusion (GR), and preconditioning plus gradual reperfusion (Pre-con+GR). Control hearts underwent no additional intervention. Preconditioning consisted of three cycles of 5 min of ischaemia and 5 min of reperfusion before the 1.5-h ischaemia. Gradual reperfusion hearts underwent 5 stages involving 10-s occlusion/20-s reperfusion, 20-s occlusion/40-s reperfusion, 50-s occlusion/30-s reperfusion, 40-s occlusion/20-s reperfusion, 50-s occlusion/10-s reperfusion starting 10 s after release of the index coronary occlusion. Preconditioning plus gradual reperfusion performed both interventions in preconditioning and gradual reperfusion. 1.5 h reperfusion later, mitochondria were isolated from the risk region myocardium, and mPTP opening was determined by using the mPTP kinetics method.

**Results** Preconditioning, and gradual reperfusion alone significantly limited infarct size, which averaged 7.21 ± 4.76%, 5.36 ± 1.90% of left ventricular weight, respectively, versus 11.94 ± 5.75% in controls (p < 0.05 vs control). Preconditioning plus gradual reperfusion averaged 7.53 ± 5.45% of left ventricular weight offering no greater effect than preconditioning or gradual reperfusion alone (p > 0.05). The t1/2 of mPTP kinetics averaged 5.57 ± 4.76 min, 5.27 ± 4.76 min, in preconditioning and gradual reperfusion, respectively, significantly higher than the value of 5.06 ± 4.76 min in controls (p < 0.05). The t1/2 of mPTP kinetics averaged 6.62 ± 4.76 min in preconditioning plus gradual reperfusion, however, has no more effect than preconditioning or gradual reperfusion alone (p > 0.05).

**Conclusions** The combination of ischaemic preconditioning and gradual reperfusion has no greater effect on mitochondrial permeability pore but provides more powerful anti-ischaemic protection than either intervention alone.

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**e0068 INVESTIGATION OF VERAPAMIL IN REVERSING ALTERATIONS OF CELLULAR ELECTROPHYSIOLOGY UNDERLYING VENTRICULAR ARRHYTHMIA IN DOGS WITH MULTIPLE ORGAN DYSFUNCTION SYNDROME**

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**Objective** The mechanism of Verapamil in reversing alterations of cellular electrophysiology underlying ventricular arrhythmia in dogs with multiple organ dysfunction syndrome (MODS) was not reported and their relationship to arrhythmogenesis was likely very limited.

**Methods** 12 dogs, of weight 8.67 ± 0.75 kg, were divided into two groups: control group (n = 6) and MODS group (n = 6). MODS lasting for 72 h was induced. Ventricular myocytes were enzymatically isolated. Early afterdepolarizations (EAD), action potential durations (APD), and L-type calcium currents were assessed before and after Verapamil perfusion.

**Results** Sinus arrhythmias in all MODS dogs (100%, 6 of 6, n = 6) and premature ventricular beats in 4 MODS dogs (66%; 4 of 6, n = 6) were recorded, while no arrhythmias were found in control animals. The prolongation of APD associated with decreased L-type Ca2+ currents and frequent provocation of EAD were the typical electrophysiological alterations in myocytes of MODS dogs. The AP prolongation was shortened, L-type calcium currents was decreased. EAD was suppressed by using Verapamil (100 μmol/l) in ventricular myocytes of MODS dogs (66%; 4 of 6, n = 6). EAD could be induced after elusion of Verapamil.

**Conclusions** The cellular electrophysiology changes within 72 h in the heart of MODS dogs were APD prolongation, markedly decreased L-type Ca2+ currents as well as frequently provoked EAD. Verapamil appears to be an effective agent in reversing the alterations of cellular electrophysiology in the early stage of MODS.