benefits of IPC and the effects of this on mitochondrial complexity and inner mitochondrial membrane potential (ψ M).

Methods Used Male Sprague Dawley rats ($n=17$, 322 ± 17 g) were heparinized and anesthetized with 80 mg/kg pentobarbital IP, and their hearts excised and perfused at constant pressure with a non-circulating Langendorff apparatus. Left ventricular (LV) pressure (LVDP) and heart rate (HR) were continually measured with a fluid filled latex balloon attached to a pressure transducer. Treatment groups were: ischemia-reperfusion (IR)($n=6$): 20 min. perfusion, 30 min. of global ischemia, 45 min. of reperfusion; IPC ($n=5$): 10 min. perfusion, 3 min. ischemia with 2 min. reperfusion repeated 3 times prior to IR protocol, IPC+MLA ($n=6$): 6 min. perfusion, 4 min. of infusion of MLA at 233 nM, IPC with MLA during reperfusion periods, then IR. Mitochondria were isolated from the LV free wall, stained for ψ M and for size, and examined by Flow Cytometry with a BD LSRFortessa. Controls (C) ($n=4$) were freshly excised hearts from similar animals with identical anesthesia.

Summary of Results IPC increased LV work product (LVDP times HR) as a percent of pre-ischemia (%P) during reperfusion compared to IR control, and this effect was attenuated by MLA pretreatment (IR= $24.1 \pm 4.5\%$ P, IPC= $49.8 \pm 2.8\%$ P, IPC+MLA= $33.8 \pm 3.5\%$ P, $p < 0.01$). IPC reduced end diastolic pressure from IR levels, and this was partially prevented by MLA treatment (IR= 78.8 ± 7.7 mm Hg, IPC= 18.8 ± 6.6 mm Hg, IPC+MLA= 46.3 ± 8.6 mm Hg, $p < 0.05$). IPC maintained mitochondrial structural complexity compared to IR (C= $65 \pm 6\%$ of total mitochondria, IPC= $61 \pm 5\%$, IR= $32 \pm 4\%$, $p < 0.01$). MLA reduced the effect of IPC on ψ M in intact mitochondria to IR levels (IR= $67 \pm 10\%$ of intact population, IPC= $88 \pm 3\%$, IPC+MLA= $71 \pm 4\%$, $p < 0.01$).

Conclusions Signaling through the $\alpha 7$ nAChR is necessary for the effect of IPC on maintaining ψ M and cardiac contractile function after IR injury.

Display Posters

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P1 CHOLINERGIC RECEPTOR FUNCTION IN CARDIAC ISCHEMIC PRECONDITIONING

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Purpose of Study Cardiac acetylcholine (ACh) signaling is protective, but the role of ACh in ischemic preconditioning (IPC) remains largely unknown. We studied the effect of selective $\alpha 7$ nicotinic ACh receptor ($\alpha 7$ nAChR) antagonism by methyllycaconitine (MLA) on the functional