

Poster presentation

Vardenafil improves myocardial and endothelial function after cardiopulmonary bypass

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Vardenafil is a novel PDE-5 blocker with known vasodilatory properties via enhanced cGMP accumulation. In the present pre-clinical study, we investigated the effects of vardenafil pretreatment on myocardial and endothelial function in an experimental model of cardioplegic arrest and extracorporeal circulation.

Twelve anesthetized dogs, underwent hypothermic cardiopulmonary bypass. 6 dogs received vardenafil (30 µg/kg) prior initiation of cardiopulmonary bypass. After 60 minutes of hypothermic cardiac arrest, reperfusion was started. Left ventricular end-systolic pressure volume relationship (Ees) was measured by a combined pressure-volume-conductance catheter at baseline and after 60 minutes of reperfusion. Left anterior descending coronary blood flow (CBF) and endothelium-dependent vasodilatation to acetylcholine (ACH) were determined.

The administration of vardenafil led to a significantly better recovery (given as percent of baseline) of Ees $75 \pm 5\%$ vs. $49 \pm 5\%$, $p < 0.05$. CBF was also significantly higher in the Vardenafil group (58 ± 12 vs. 21 ± 3 , ml/min, $p < 0.05$). ACH resulted in a significantly higher increase in CBF ($80 \pm 6\%$ vs. $29 \pm 5\%$, $p < 0.05$) in the Vardenafil group.

Application of vardenafil improves myocardial and endothelial function after cardiopulmonary bypass with hypothermic cardiac arrest.