

THE EFFECTS OF MULTI-LIMB REMOTE ISCHAEMIC PRECONDITIONING IN PATIENTS UNDERGOING CARDIAC BYPASS SURGERY

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Introduction Remote ischaemic preconditioning (RIPC) has emerged as a non-invasive, low-cost therapeutic intervention for reducing peri-operative myocardial injury (PMI) in patients undergoing coronary artery bypass graft (CABG) and/or valve surgery. However, some studies have been neutral, suggesting that the standard single limb RIPC stimulus may be ineffective under certain conditions. We investigated the effect of increasing the strength of the RIPC stimulus in patients undergoing elective cardiac bypass surgery.

Methods and results 180 consecutive patients undergoing elective CABG and/or valve surgery were randomised to receive either RIPC (2–5 min cycles of simultaneous upper arm and thigh cuff inflation and deflation, N=90) or control (uninflated cuffs placed on the upper arm and thigh for 20 min, N=90). Patients randomised to RIPC had less PMI (26% reduction in 72 h area-under-the-curve high-sensitivity Troponin T; p=0.003), reduced incidence of post-operative atrial fibrillation (AF; 11% RIPC vs 24% control; p=0.031), decreased the incidence of acute kidney injury (AKI, 7% RIPC vs 17% control; p=0.036), and shortened the stay on the intensive care unit (ICU, 2 days RIPC vs 3 days control; p=0.043). Interestingly, we found that in those patients who received IV GTN during surgery sustained less PMI, and RIPC was ineffective.

Conclusions Multi-limb RIPC induced by simultaneous upper arm and leg cuff inflation reduced PMI, decreased the incidence of post-operative AF, reduced the incidence of AKI and shortened the ITU stay, in patients undergoing CABG and/or valve surgery.