

## CLINICAL OUTCOMES OF NORMOTHERMIC CARDIOPULMONARY BYPASS AFTER MITRAL VALVE REPLACEMENT

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### Abstract

**Objective:** Normothermic perfusion has been proposed as a more physiologic technique than hypothermic perfusion during cardiac operations. The aim of this study was to evaluate the effects of systemic perfusion temperature on clinical outcome in patients undergoing mitral valve replacement.

**Methods:** Fifty patients with similar clinical and operative data were prospectively randomized into two groups: hypothermia (rectal temperature 28-30°C group A, n=25), and normothermia (rectal temperature 35-37°C group B, n=25). In both groups cold crystalloid cardioplegic solution and topical hypothermia were used.

**Results:** During cardiopulmonary bypass (CPB) systemic vascular resistance (SVR) was significantly lower in group B patients ( $P<0.001$ ), they needed a significant ( $P<0.001$ ) use of vasoconstrictive drugs to maintain adequate blood pressure. After removal of the aortic cross clamp, a spontaneous sinus rhythm resumed in 52% of patients in group A and 96% in group B patients ( $P<0.001$ ). To discontinue CPB, vasoconstrictive drugs were used in 96% of patients in group B and in none of group A patients ( $P<0.001$ ), vasodilating drugs were used in 96% of patients in group A and in 24% of patients in group B ( $P<0.001$ ), the use of positive inotropes was significantly higher in group A patients both during and after discontinuation of CPB ( $P<0.001$ ). In early postoperative, group B patients had a significantly lower SVR and higher cardiac index ( $P<0.01$ ,  $P<0.001$  respectively). Blood loss was significantly higher in group A patients ( $P<0.001$ ) with a significant need for blood and fresh frozen plasma as well as the need for surgical re-exploration ( $P<0.001$ ,  $P<0.05$  respectively). Group B patients showed a more physiological re-warming ( $P<0.001$ ). No differences were present between the two groups as regard intubation time, ICU and postoperative hospital stay.

**Conclusion:** Normothermic CPB IS safe, not associated with additional adverse effects, and facilitates postoperative management, but it requires an increased administration of vasoconstrictors to maintain a satisfying perfusion pressure.