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A comparison of different management techniques for myocardial protection in acyanotic congenital cardiac patients

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Abstract: Aim: It has already been shown that terminal warm blood cardioplegia (TWBC) supports myocardial protection in pediatric patients when it is administered after cold blood cardioplegia. However, the myocardial protective effects of TWBC applied after cold crystalloid cardioplegia (CCC) is still a subject of debate. Materials and methods: Twenty acyanotic congenital cardiac patients were randomly divided into 2 groups of 10. In the control group (CG), moderate hypothermia, topical cooling, and cold crystalloid cardioplegia were performed for the protection of the myocardium. In the other group (TWBCG), the same procedure was supported using TWBC just before the unclamping of the aorta. Blood samples were analyzed to discover the progression of anaerobic energy metabolism potentially causing injury of the myocardium during the ischemic, reperfusion, and postoperative period. Results: There were no significant statistical differences in age, body weight, mean pulmonary artery pressure, operation procedure, cardiopulmonary bypass and aortic cross clamping time, period of respiratory support, and intensive care unit and hospital stay. Also measurement of serum cardiac troponin T (TnT), creatine kinase MB(CK-MB), and lactate levels preoperatively, just after the release of the cross clamp and at the time of postoperative 4, 12, 24, and 48 h showed no significant differences either. Conclusion: TWBC was not able to enhance the myocardial protective effects in acyanotic congenital cardiac patients when performed in addition to CCC.

Key words: Myocardial protection, terminal warm blood cardioplegia, cold crystalloid cardioplegia

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