

The effect of trimetazidine in the ischemia-reperfusion injury in myocardial revascularization surgery

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Background: The objective of this study was to determine whether trimetazidine could reduce myocardial reperfusion injury damage in coronary artery bypass graft surgery (CABG) using evolutive serial troponin T and CPK-MB blood levels and to verify possible follow-up changes in left ventricular (LV) echocardiographic function, and also the frequency of the ventricular fibrillation at the end of bypass.

Methods: We conducted a double-blind, placebo-controlled study on 60 randomized patients undergoing CABG. The TMZ group was composed of 30 patients and the placebo group of 30 patients. They were stratified by echocardiography (2D echo) in order to include only patients with normal and/or mild LV dysfunction. After the initial assessment they were submitted to serial troponin T and CPK-MB blood levels, in four distinct moments: pre-operative without medication, five minutes after aortic unclamping taken from the right atrium, with at least ten days of medication or placebo, and 12, 24 and 48 hours after surgery from the central venous catheter. Order of 2D echo measurements were performed: without medication, on the day of surgery with the use of ten days of medication/placebo and after leaving the ICU with at least fifteen days of medication/placebo. The ventricular fibrillation was verified through cardioscopic and direct transthoracic observation after bypass.

Results: Troponin T reached in samples analyzed by time in the group treated compared with the control group the following values: 5 min ($p = 0001$); 12h ($p = 0001$); 24h ($p = 0001$); 48h ($p = 0.0001$). The CPK-MB isoenzyme reached the following values: 5 min ($p = 0001$); 12h ($p = 0001$); 24h ($p = 0001$); 48h ($p = 0001$). Echocardiographic variables studied showed no follow-up changes in the groups. The frequency of ventricular fibrillation was low in both groups.

Conclusions and clinical implications: These results obtained by measurement of cardiac TnT and CPK-MB suggested that pretreatment with trimetazidine reduces ischemic-reperfusion damage during coronary bypass surgery but did not affect LV 2D echo variables and showed no differences in the incidence of ventricular fibrillation without side effects in the groups studied.

Biography

Gerez Fernandes Martins had done Specialization in cardiology by Marcilio Dias Naval Hospital (1986), and the Institute of Postgraduate Medicine of Rio de Janeiro (1990) Prof. StansMuradNeto and Master of Medicine (Cardiology) at the Federal University of Rio de Janeiro (2009). Ph.D. in Cardiology at the Federal University of Rio de Janeiro (UFRJ). He works as a physician at the State Institute Aloysio de Castro, having experience in the field of cardiology, with emphasis on Postoperative Intensive Care in Cardiac Surgery.

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