

Perkowski D, S Wagner, A Marcus, J St. Cyr. Ribose enhances ventricular function following off pump coronary artery bypass surgery. *J Alt Comp Med* 2005;11(4):745

CONTEXT: Enhancement of ventricular function during and following coronary artery bypass surgery (CAB) utilizing metabolic substrates may improve outcomes. After acute myocardial infarction (AMI) a delay of seven days has proven to be beneficial. Reduction in time from AMI to CAB would reduce length of hospital stay and a potential saving in health care dollars. Additionally, avoidance of cardiopulmonary bypass and the use of cardioplegia by using the off pump technique (OPCAB) may further minimize impairment of ventricular function. Ribose, a natural occurring carbohydrate, has demonstrated its ability to replenish myocardial ATP levels along with an associated improvement in diastolic function following ischemia. OBJECTIVE: This study hypothesizes that use of both an OPCAB approach for revascularization along with preoperative supplementation of ribose in coronary artery disease patients may potentially improve myocardial function postoperatively. SETTING: Saddleback Memorial Medical Center. PATIENTS: Forty-four (20 controls, 24 ribose) adult patients (48-84 years of age) were enrolled in this study. All patients underwent OPCAB and were matched according to preoperative volume status, cardiac medications (pre-, intra-, and postoperatively), and risk assessment (STS score, mean: control=3.5%, ribose=3.9%). Ejection fractions ranged between 30-72% (means: control=59%, ribose=56%). INTERVENTIONS: Oral ribose was supplied daily at the time of admission to the hospital, where the control patients received no ribose. MAIN OUTCOME MEASURES: Preoperative (baseline) and immediately postoperative cardiac indices were assessed in all patients. There were no operative or postoperative deaths. RESULTS: Ribose treated patients showed 49% greater increases in post-operative cardiac index than controls (means: 0.82 l/min/m² vs. 0.55 l/min/m², p<0.028). CONCLUSIONS: Revascularization with an OPCAB procedure coupled with ribose preloading improved cardiac function to a greater degree than traditional techniques. Further multicenter investigations involving this protocol need to be explored.