

**Nutritional Supplementation With MyoVive® Repletes
Essential Cardiac Myocyte Nutrients and Reduces Left
Ventricular Size in Patients With Left Ventricular
Dysfunction**

Fanda Jeejeebhoy, Mary Keith, Michael Freeman, Aiala Barr, Michele McCall, Regina Kurian, David Mazer, Lee Errett, *St. Michael's Hospital, Toronto, Ontario, Canada*
University of Toronto, Toronto, Ontario, Canada.

Background: Congestive heart failure (CHF) depletes the myocardium of carnitine, coenzyme Q10 (COQ10) and taurine, substances known to influence mitochondrial function and cell calcium. We hypothesized that feeding patients a nutritional supplement which contains carnitine, CoQ10 and taurine would result in higher myocardial levels and improve left ventricular function.

Methods: Forty-one aortocoronary artery bypass patients with an ejection fraction(EF)<40% at referral, were randomized to a double-blind trial of supplement(S) or placebo(P). Radionuclide ventriculography was performed at randomization (R) and just prior to surgery. Surgical myocardial biopsies, adjusted for protein content, were analyzed for carnitine, COQ10 and taurine levels. Results: The groups were well matched. Minor exceptions were S vs P for digoxin use (7 versus 0 respectively p=0.0087) and age (62±11 versus 69±5 respectively, p=0.0395). There were significantly higher levels in the treated as compared to the placebo group for myocardial levels of COQ10 (138.17±39.87 and 56.67±23.08 nmols/g wet weight[p=0.0006]), taurine (13.12±4.00 and 7.91±2.81 umol/g wet weight [p=0.0016]), and carnitine (1735.4±798.5 and 1237.6±343.1 nmol/g wet weight [p=0.056 and p=0.028 one tailed]). The left ventricular end diastolic volume (LVEDV) fell by -7.5±21.7 in the supplemented group and increased by 10.0±19.8 in the placebo fed patients (p=0.037).

Conclusions: Supplementation results in higher myocardial COQ10, taurine and carnitine levels and is associated with a reduction in LVEDV in patients with left ventricular dysfunction prior to revascularization. Since the risk of mortality for surgical revascularization is related to preoperative LVEDV, supplementation could improve outcomes.

11:45 a.m.