Correlation Between Troponin Values and Echocardiographic Findings in Children Following Global Ischemic Cardiac Arrest

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Background: Myocardial dysfunction occurs immediately after successful cardiopulmonary resuscitation. Purpose: To determine whether measurement of cardiac troponin in children with acute out-of-hospital cardiac arrest predicts the severity of hypoxic-ischemic myocardial injury and echocardiographic evidence of ventricular dysfunction. Methods: This is a prospective, observational study. Patients admitted to the Pediatric Intensive Care Unit (PICU) following an out-of-hospital cardiopulmonary arrest. Troponin measurements were obtained upon admission to the PICU, and again at 12, 24, and 48 hours. Echocardiograms were performed within 24 hours of admission. Results: 24 patients were enrolled. Survival to hospital discharge was 20% (7/35). The mean age was similar across both survivors and nonsurvivors. Mean heart rates were 150 ± 21.6 min (3 to 63 minutes) for survivors vs 34.2 ± 18.5 min (range 4 to 70 minutes) for the nonsurvivors (p=0.05). Survivors received less number of esmolol doses compared to nonsurvivors (1.3 ± 2.2 vs 2.5 ± 1.6, p=0.02). Only one patient required defibrillation for ventricular arrhythmia during resuscitation (nonsurvivor group). There is a negative association between ejection fraction and troponin measurements at 12 and 24 hours (r=-0.54, p=0.01 and r=-0.59, p=0.02, respectively). Most of the negative association is found between shortening fraction and troponin measurements at 12 and 24 hours (r=-0.46, p=0.03 and r=-0.65, p=0.01, respectively). The mean ejection fraction for survivors was higher than that of nonsurvivors (70.2 ± 11.1 vs 53.2 ± 19.6, p=0.04). This difference was also demonstrated for shortening fraction measurements (37.5 ± 8.8 percent versus 25.5 ± 10.7, p=0.02). Discussion: We report a correlation between troponin values and echocardiographic findings of ventricular dysfunction. This correlation is rimeventuated in a pediatric population following global ischemic cardiac arrest. These patients were devoid of coronary artery disease or congenital heart disease.
Results: Complete data sets were available for 58 defibrillators; 3 had been replaced at follow-up. The mean (SD) time difference between defibrillators and the atomic clock after 3 months was 1.50 ± 0.86 min (range 0 - 1.90 min). For each defibrillator model, the mean (range) time difference after 3 months was 0.21 ± 0.03 min (Lifepack 9, N = 34), 1.94 ± 1.34 min (Lifepack 10, N = 5), 2.17 ± 1.33 min (Heartstream, N = 6), 3.33 ± 0.52 min (Lifepack 12, N = 6), 4.20 ± 4.03 min (HP Codemaster, N = 4), 2.00 ± 1.41 min (Zoll M, N=2) and 1.00 ± 0.00 min (Lifepack 7, N=1). The Lifepack 9 defibrillator clocks had significantly less time change over 3 months than Heartstream, Lifepack 12 and HP Codemaster defibrillator clocks (P < 0.0003).

Conclusion: Defibrillator clocks are unable to maintain accurate time over 3 months. Without extra measures defibrillator clocks are too inaccurate to be used to assess collapse-to-first shock time interval.

POSTER SESSION

1028 Combined Procedure Outcomes in Coronary Artery Bypass Patients
Sunday, March 30, 2003, 2:00-5:00 p.m.
McCormick Place, Hall A
Presentation Hour: Noon-1:00 p.m.

1028-96 Higher Mortality in Patients With Patent Stented Arteries Undergoing Coronary Artery Bypass Surgery

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Aim: Current surgical practice is to bypass a previously stented artery even if it is patent. Does bypassing a patent stented artery affect outcome? We sought to compare outcomes of patients with patent stents (>50% stenosis) with those with in-stent restenosis (<50% stenosis) undergoing coronary artery bypass grafting (CABG) to the stented arteries.

Methods: From 1995 through 2001, 359 patients had coronary stents and CABG at our institution. Of these, 192 had patent stents and 167 had stents with in-stent restenosis that were bypassed. Patients in the 2 groups were similar with respect to age, left ventricular function, extent of coronary disease, time from stent to CABG and prevalence of diabetes, smoking, hypertension and renal insufficiency. Survival data was determined institutionally. Of the 2 groups, 123 (67%) underwent surgery at our institution. Of these, 67 patients had patent stents and 56 patients had in-stent restenosis.

Results: Mean follow-up time is 44.1 ± 33.1 months. Preoperative NYHA class, left ventricular (LV) ejection fraction (EF) and LV end-diastolic diameter were similar. Early operative mortality was 4.6% in the patent stent group and 5.0% in the stented restenosis group. There were 18 deaths in patients with patent stents and 11 patients with in-stent restenosis undergoing CABG. Kaplan-Meier analysis is shown in the figure (p=0.05).

Conclusions: Patients with patent stents undergoing CABG to the stented vessel had a higher mortality than did similar patients with in-stent restenosis.

1028-97 Minimally Invasive Coronary Bypass Grafting of the Left Anterior Descending Coronary Artery Improves Myocardial Perfusion in the Nonrevascularized Second Vessel Territory in Two-Vessel Coronary Artery Disease

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Background: Although coronary bypass grafting and coronary angioplasty (PTCA) are often performed in the same setting, sometimes PTCA is contraindicated. The optimal strategy in this setting is unknown. The purpose of this study was to compare the effect of minimally invasive coronary bypass grafting (MIDCAB) on myocardial perfusion in two-vessel CAD.

Methods: In 59 patients with two-vessel CAD, at 12 months after MIDCAB of the LAD, myocardial perfusion was assessed by single photon emission computed tomography (SPECT) in the LAD territory. The LAD was either (1) patent (n=13) or (2) patent with in-stent restenosis (n=2). Patients in the 2 groups were similar with respect to age, left ventricular (LV) ejection fraction (EF) and LV end-diastolic diameter were similar. Early operative mortality was 4.6% in the patent stent group and 5.0% in the stented restenosis group. There were 18 deaths in patients with patent stents and 11 patients with in-stent restenosis undergoing CABG. Kaplan-Meier analysis is shown in the figure (p=0.05).

Conclusions: In patients with two-vessel CAD, at 12 months after MIDCAB of the LAD, myocardial perfusion shows a similar sustained improvement both in the LAD and in the 2nd vessel territories, irrespective of revascularization by PTCA.

1028-98 Is Endoaneurysmorrhaphy Superior to Linear Suture for Left Ventricular Aneurysm Repair?

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Objectives: Endoaneurysmorrhaphy (EA) has been proposed as a more physiologic repair of left ventricular aneurysm (LVA) than linear suture. The aim of the present study was to evaluate early and late results of 2 different surgical techniques for the LVA repair (EA versus linear closure [LC]).

Methods: Between November 1993 and November 2001, 112 patients (70 males/42 females) underwent surgical repair for LVA. Group A (EA) was employed in 69 pts (61.6%) and Group B (LC) in 44 patients (38.4%). Clinical outcomes and echocardiographic measurements of Group A were compared with those in Group B.

Results: Mean follow-up time was 44.1±33.1 months. Preoperative NYHA class, left ventricular (LV) ejection fraction (EF) and LV end-diastolic diameter were similar. Early operative mortality was 4.6% in the patent stent group and 5.0% in the stented restenosis group. There were 18 deaths in patients with patent stents and 11 patients with in-stent restenosis undergoing CABG. Kaplan-Meier analysis is shown in the figure (p=0.05).

Conclusions: In patients with two-vessel CAD, at 12 months after MIDCAB of the LAD, myocardial perfusion shows a similar sustained improvement both in the LAD and in the 2nd vessel territories, irrespective of revascularization by PTCA.