

Alcohol Use in Donors is a Protective Factor on Recipients' Outcome after Heart Transplantation

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Objective: Outcome of heart transplantation is highly influenced by good donor selection. Since history of alcoholism is prevalent among potential heart donors, we sought to explore the effect of alcohol use in donors on the outcome of heart transplantation in the recipient.

Method: 437 consecutive patients underwent heart transplantation, from January 2002 through September 2005. Patients' files were retrospectively studied. Mean follow-up period was 3.14±1.9 years (range, 3 days to 6.5 years). The cohort was divided into two subgroups. Alcoholic donor group (ADG) include 98/421 patients and non-alcoholic donor group (NADG) with 323/421 patients. Mean age, 35.3±11.4 (Range, 18 to 66) for the ADG and 33±12.2 years (range, 18 to 62) for NADG.

Results: Mortality rate among the ADG was 7/98 (7.1%), NADG was 55/323 (17.1%) (p=0.015). The mean interval time between transplant and mortality was at ADG 27.7±20.6 months (range, 0.07 to 51), NADG 16.4 ±19.6 months (range, 0.14 to 73) (p= 0.031). Survival rate was significantly higher among the ADG 72.8±1.9 months compare with NADG: 66.2±1.5 months (p=0.019). Rejection rate was 22/421 (5.2%), in NADG 17/323 (5.2%) and 5/98 (5.1%) in ADG. Rejection free survival was 74.6±0.85 with no significant difference between the two groups (p=0.85).

Conclusion: Donor's chronic alcoholism found to be a protective factor regarding the outcome after heart transplantation. Significant differences were found in mortality rate and survival after heart transplantation between the ADG and NADG. This data supports the fact that it is safe to use donors' hearts regardless of a history of alcoholism.

Trans Esophageal Echocardiography - a Priceless Tool in Providing Surgical Excellence

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Introduction: Post operative evaluation of the adequacy of surgical repair of congenital heart defects is of utmost importance. Trans Esophageal Echocardiography (TEE) has become the standard of care in providing real time information and in assessing the operative success, and has great influence on cardiac surgical decision making. For the last decade TEE is routinely performed at our institution following congenital heart surgery. We herein present our experience and clinical impact of the use of TEE in the operating room.

Materials and Methods:

Retrospective review of all intra-operative TEE studies performed in the operating room in the years 2004 to 2007.

Results: 1000 TEE studies were performed in the operating room following congenital heart surgery in the years 2004 to 2007. In 5.5% of the cases (55 Pts) a second bypass run was needed in order to achieve optimal results due to residual RVOTO (51%, mostly TOF), residual LVOTO (7%), Valve dysfunction (18%), Ventricular dysfunction (5%) and Unexpected surgical errors (5%). In all 55 patients residual lesions were corrected.

Conclusion: TEE is a priceless tool in providing surgical excellence. Close collaboration between the cardiologist and the cardiac surgeon leads to a team approach, enabling the surgeon to safely walk the thin ice by precisely tailoring his surgical repair, knowing that TEE will guide him through in achieving an the optimal result for the benefit of the patient.

Risk Factors for Failed "Fast-tracking" after Cardiac Surgery in Patients Older than 70 Years

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INTRODUCTION In recent years, the number of elderly people has grown at twice the rate of the general population. Cardiac surgery is one of the most often performed procedures in this age group. "Fast-track" pathway after cardiac surgery was introduced to expedite recovery and thus to make more efficient use of limited facilities and resources. The present study sought to identify the determinants of failure of "Fast-track" pathway in elderly patients.

MATERIALS AND METHODS We performed a retrospective observational study of all patients aged 70 years or more who underwent cardiac surgery between January 2004 and June 2007.

RESULTS During the study period 2272 patients underwent cardiac surgery. Of them 860 (37.9%) were 70 years old or older. The septuagenarian group included 576 patients and the octogenarian group, 284. "Fast-track" pathway was successful in 54.5% and 37.3%, respectively. On multiple logistic regression analysis, stroke, renal failure, and procedures other than first isolated CABG were independently associated with failed early extubation, delayed intensive care unit discharge and delayed hospital discharge in both groups. Infections and atrial fibrillation were independent risk factors for delayed hospital discharge in both groups and delayed intensive care unit discharge in the octogenarians. In the octogenarians, congestive heart failure was an independent risk factor for failed early extubation, delayed intensive care unit discharge and delayed hospital discharge.

CONCLUSION "Fast-track" pathway may be safely applied in selected septuagenarians and octogenarians. Age alone should not exclude otherwise qualified candidates from consideration for "Fast-trapathwa"

Pericardial Window Through Left Vertical Minithoracotomy for Thick Pericardium with Massive Effusion

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Background: There are two main approaches (transthoracic and subxiphoid) for creation of pericardial window. In recent years thoracoscopy has also yielded positive results. Some controversies still exist regarding the efficacy of such operations in for thick pericardium. We retrospectively reviewed our 5-year experience with left minithoracotomy through parasternal vertical approach in patients with massive pericardial effusion.

Patients and methods: Between September 2001 and October 2006, 14 patients (men-8, women-6; mean age 62 years) with recurrent massive pericardial effusion underwent minithoracotomy in the 4th intercostals space through a left vertical parasternal skin incision.

Results: Large pericardial windows were created. Mean operating time was 35 min. Thick pericardium (3-4 mm) and fibrin collections were found in 13 cases. Pathologic findings were compatible with: acute or chronic pericarditis (9), metastatic carcinoma (3), mesothelioma (1) and tuberculosis (1). There were no postoperative complications and no recurrent pericardial effusions. Seven patients died due to the progress of their main disease (renal failure – 3, malignancy-3, cirrhosis –1).

Conclusions: Minithoracotomy through a left parasternal vertical incision in the 4th intercostal space is suitable for creation of the window even in complicated cases, where the pericardium is thick. It gives optimal conditions for surgeon and provides excellent material for a pathological diagnosis, with good functional and cosmetic results.

Permanent Left Ventricular Assist Device (Destination Therapy), One Year Follow-Up; the Cardiologist Perspective

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Background: Left ventricular assist devices (LVADs) were recently approved for “destination therapy“, namely a permanent mechanical solution for patients with end-stage heart failure who are not eligible for heart transplantation. We present our one year follow-up in a patient with HeartMate II LVAD.

Case presentation: A 67 year old man who suffered from HF for 7 years was admitted with acute decompensated heart failure (HF) and hemodynamic manifestations of cardiogenic shock. After he remained dependent on an intra aortic balloon pump and positive inotrops, a HeartMate II (Thoratec Corporation) LVAD was implanted as destination therapy. During one year follow-up, the patient remained free of HF symptoms and was able to perform daily activities with no significant limitations including traveling out of town for family gathering meeting. The patient was followed closely by the cardiology heart failure team on a basis of two visits per month. Speed adjustments of the device were done based on clinical and echocardiogram measurements. There were no significant technical problems of the device and the patient was able to replace batteries independently. During one year of follow-up we needed to take care of several issues; epistaxis which required local treatments and anti-coagulation therapy adjustment, cable exit wound infection and bacteremia which required intra-venous course of antibiotics.

Conclusion: The LVAD as a destination therapy, both prolonged our heart failure patient's life and significantly improved its quality. It is however prudent to keep the patients in a close surveillance as medical complications are not un-common.

Wireless Acoustic Miniature Pulmonary Pressure Sensor in Patients with Congestive Heart Failure (CHF)

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BACKGROUND: Decompensation is frequent in patients with CHF despite improved medical therapy. Heart catheterization is the most accurate way to define hemodynamic state, but its invasive nature limits its use to patients with severe decompensation. Therefore, the noninvasive detection of hemodynamic abnormalities before clinical deterioration occurs might be helpful to improve care.

AIMS: This study describes a new wireless pulmonary artery (PA) pressure measurement system comprising a miniature PA device implant using right heart catheterization.

METHODS: 10 pts (aged 71 ± 10 y, 8 males, 7 CAD, 8 LVEF $< 35\%$) underwent right heart catheterization. A miniature device was implanted in 6 pts (the anatomy of the PA was not suitable for implantation in 4 pts.). Safety of implantation and functionality of the device - The ability to obtain PA pressure from the implant using wireless acoustic communication in clinic and during daily measurement at home was examined.

RESULTS: The device was successfully implanted in the PA using right heart catheterization in 6 pts. Patients were discharged 1 day after the procedure. No device or implantation related complications occurred during the following 3 months.

Pressure measurements were successfully and repeatedly obtained from all implants. Compared to measurement at implantation accuracy of the implant was checked [mean \pm SD (mmHg): 22 ± 6 versus 19 ± 5 , $p=ns$]. Five patients used the home unit to obtain daily measurement of their PA pressure. Altogether >500 PA tracings were obtained from these patients. Trends of change in PA pressure over time were obtained. In one patient medical therapy was changed based on these measurement. None of the patients had a decompensation event during the monitoring period.

CONCLUSIONS: This study demonstrated that wireless communication with a miniature PA pressure sensor is feasible. Repeated, high-quality PA tracings were easily obtained that might be helpful to improve management of patients with CHF.

Prevalence and Hemodynamic Consequences of Sleep Apnea in Advanced Systolic Heart Failure Patients using Novel Cardiovascular Sleep Markers

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Background: Sleep apnea is associated with poor prognosis in heart failure (HF) patients although its prevalence and implications are still debatable. With the aim of assessing the incidence of sleep apnea in advanced systolic HF and its hemodynamic consequences, home sleep studies of 60 patients, routinely treated in a HF clinic, were conducted and analyzed using standard and novel sleep markers.

Methods: 60 patients (52 males, 8 females, age 65±13 years) with advanced systolic HF were included. Mean New York Heart Association Classification was 3; left ventricle ejection fraction per echocardiogram was 25±8%; ischemic cardiomyopathy was the HF etiology in 38 (63%) patients. Beta blockers were used in 56 (93%) patients.

Each patient was home sleep monitored (Somte ambulatory polysomnograph and Mortara H12 scribe Holter) for a full night. WideMed's Morpheus system was used for scoring and analysis (including novel cardiovascular apnea markers) and the results were manually validated.

Results: Total sleeping time was 5±1 hours. Apnea-hypopnea index was 35±19 episodes per hour; Cheyne-Stokes breathing was present in 57 (95%) patients.

We define cardiovascular response to an apnea by ≥3% desaturation, increase of at least 10% in heart rate, and peripheral (finger) vasoconstriction of at least 75%. Out of 55 patients with complete Holter recordings, 40 (73%) patients had at least 10% of their apneas resulting in a complete response; 6 (11%) showed only heart rate response; 5 (9%) showed only vasoconstriction response, and the remaining 4 (7%) were below the thresholds.

Conclusions:

Assessment of the prevalence and hemodynamic consequences of sleep apnea in advanced systolic HF resulted in the following:

1. The prevalence of apnea as well as Cheyne-Stokes breathing is much higher than had been previously reported: both were observed in almost all the studied patients. This may be attributed to the severity of HF condition in this study.
2. Novel sleep parameters were used to assess hemodynamic consequences of sleep apnea: episodes of sleep apnea are associated with desaturation, increased heart rate and peripheral vasoconstriction. These repeated hemodynamic events related to sympathetic reactivation may provide a basis for using sleep apnea as a prognostic marker in HF patients.

Trend in Admission Rate and One Year Mortality of Heart Failure Patients Admitted to Clalit Hospitals, 2002-2005

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Aim: The study aim was to evaluate the admissions time trend, patient characteristics and one year mortality of patients admitted for heart failure.

Methods: All heart failure admissions to the seven major general hospitals of the Clalit Sick Fund during years 2002-2005 throughout Israel were screened. Patients with a principal diagnosis of heart failure were enrolled. Patients with acute heart failure due to myocardial infarction were excluded. Data on diagnoses, co-morbid conditions, medications, laboratory findings, in-hospital management and mortality were assessed.

Results: 8,246 consecutive patients were included into the study cohort. Average age was 76 years, 48% male patients, 61% of ischemic origin. A significant decline in rate of first admission from 250 to 170 cases per month was noted during the study period. Seasonality in admission rate was associated with a two-fold difference between summer and winter.

Hospital mortality rate was 5.7%. One year mortality rate 28.7%. A small decline in one year mortality from 31% to 27% was noted during the study period. One year mortality and was associated with patients' age, co-morbid conditions, routine admission laboratory results and pre-admission medications in Cox regression survival analysis. ACEI/ARBs, statins and beta-blockers were protective, while spironolactone and diuretics were associated with increased mortality risk.

Conclusions: This observational, quasi-national study demonstrated some significant time trends in admission rate and outcome of heart failure patients. Changes in drug management prior to admission could have contributed to both the decline in rate of admission and the one year mortality of these patients.

Predictors of 1-Year Mortality in Elderly Hospitalized Patients with Acute Heart Failure

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Background: Heart failure (HF) is associated with high mortality, particularly in elderly patients. However, the difference between prognostic risk factors in older and younger HF patients is unclear.

Objectives: To identify and compare predictors of 1-year mortality in patients older and younger than 75 years hospitalized with acute HF.

Methods: We analyzed the data of 2336 patients with acute HF, who were hospitalized during a 2-month prospective national survey in all public hospitals in Israel (HFSIS 2003). Patients were divided into 2 groups: >75 years (elderly), and ≤75 years (younger). Independent predictors of 1-year mortality and their significance were analyzed in each group.

Results: The elderly group included 1182 (47% males), and the younger group 1154 (63% males) patients. Strong independent predictors of 1-year mortality in the younger group included low left ventricle ejection fraction (LVEF), renal failure, hyponatremia and anemia. In the elderly group, admission systolic blood pressure (SBP) <115 mmHG, renal failure and NYHA functional class were strong predictors of mortality (Table). The relationship between admission SBP and mortality in the younger group took a reversed 'J-shape' curve, while in the elderly group a reversed steep linear curve was noted.

Conclusions: In hospitalized patients with HF younger than 75 years 1-year mortality risk is strongly associated with low LVEF, while in older patients mortality risk was inversely related to admission SBP, including the hypertensive range. These findings suggest different mechanisms of outcome in young and older patients with HF.

Independent Predictors of 1-Year Mortality				
	Age ≤ 75 years (n=1154)		Age >75 years (n=1182)	
	Hazard Ratio	95% CI	Hazard Ratio	95% CI
LVEF<30% vs. LVEF ≥ 50%	2.22	1.44-3.42	1.3	.95-1.86
Admission SBP <115 mmHG	1.46	1.04-2.04	2.00	1.51-2.65
GFR <30 ml/min	1.81	1.01-3.24	1.91	1.01-3.59
NYHA III/IV	1.57	1.15-2.13	1.70	1.31-2.21
Sodium <136 meq/dL	1.65	1.20-2.25	1.17	.89-1.55
Hemoglobin < 12g/dL	1.56	1.13-2.17	1.3	1.00-1.69

Factors Associated with One-year Mortality among Patients with Acute Myocardial Infarction in Israel from 1994 to 2004: Data from ACSIS

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BACKGROUND: Mortality from coronary artery disease (CAD) has declined substantially in the last decade. However, studies focusing on the relative impact of the factors contributing to this decline are scarce.

METHODS: Data on use of medications and procedures and one-year mortality following AMI were derived from six Acute Coronary Syndrome Israeli Surveys (AC SIS) performed between 1994-2004. The survey population included 7,383 patients hospitalized with AMI in 25 Intensive Care Units (ICCU) in Israel. Logistic regression models were used in order to evaluate the effect of various in-hospital treatments on mortality trends.

RESULTS: One-year mortality following AMI declined from 19.0% in 1994 to 12.1% in 2004 (a decrease of 33%). Logistic models adjusted for baseline characteristics and severity of the disease (Killip class >2) demonstrated that the use of each of the medications (aspirin, β -blockers, ACE Inhibitors and lipid lowering drugs), as well as the use of coronary angiography during the index hospitalization, was associated with a reduction in one-year mortality. Rates of survival increased with each additional medication given. Age and severity of disease were associated with an increase in mortality, however gender did not influence the outcome.

CONCLUSION: ACSIS surveys have demonstrated that adherence to treatment guidelines for AMI has been associated with mortality decline from coronary heart disease in Israel.