EP6

The Use of HeartMate II LVAD as a Bridge to Recovery

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Objective: With the growing use of LVAD in patients with advanced heart failure, it became apparent that there is a small subgroup of patients, mainly those with non ischemic cardiomyopathy who can undergo reverse remodeling and improve their cardiac function to the extent that the LVAD can be removed. We describe our unique recent experience with such a patient and discuss the current knowledge of this attractive field.
Methods and Results: Between August 2008 and November 2011 we used 24 long term LVADs (HeartMate II - 21, HeartWare - 3). Nineteen patients had ischemic cardiomyopathy and 5 patients had non ischemic cardiomyopathy. We describe a 45 years old obese (BMI=35), diabetic, female who was diagnosed as having non ischemic cardiomyopathy in 2008, and progressively deteriorated despite optimal medical therapy to a NYHA class IV. Pre LVAD investigation revealed VOmax of 6.3 l/kg/min, severe LV dysfunction, non significant coronary artery disease, pulmonary pressure of 65/35 mmHg, PCWP of 33 mmHg. She underwent uneventfull LVAD (HeartMate II) implantation on August 2010. In addition, she continued to receive heart failure medical therapy. Her functional status improved dramatically but she continued to gain wait. After 6 months she started to feel worse and malposition of the pump was identified, most probably due to her weight gain (BMI=45). In an attempt to become a better transplant candidate, she underwent uneventfull gastric sleeve resection in August 2011. During a moth of follow up she lost 17 kg and despite an unexpected pump stop she felt well with EF=40% on echocardiography. She underwent uneventfull HeartMate II explantation on November 2011 and discharged home 5 days later in good condition.
Conclusions: The current case, and the selected knowledge from the literature of up to 60% LVAD explantation rate, and up to 83% 3 years freedom from heart failure recurrence, offer hope for a new strategy for selected patients supported with LVAD.

Hybrid Cardiac Operating Room: First Year Experience

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Background: Cardiovascular surgery along with interventional cardiology, have been combined recently to allow a new, integrated operating rooms that can handle both procedures simultaneously. The new units are equipped with surgical and angiographic equipment and personnel and therefore require special planning and design, opening a new array of integrated procedures.
Methods: From June 2010 389 patients were operated in the Hybrid operating room. 205 where regular open heart operation, 90 were hybrid cardiovascular procedures and 94 other various procedures. The hybrid procedures included trans-apical/aorta/subclavian aortic valve implantation, mitral and tricuspid trans-catheter replacement (33), hybrid coronary revascularization (8 cases), ascending, arch and descending aorta endovascular stent-graft placement (11 cases), abdominal and peripheral vascular stenting carotid stenting and some genecology hybrid procedures (38 cases).
Results: All cases were done by teams of surgeons (cardiac or vascular) and interventional radiologists or cardiologists. Out of the hybrid cases, 30 day mortality was 2 patients. There were 5 cases that needed placement on CPB machine two of then underwent conversion to open surgery. All those patients survived except of one patient with severe LV that did not recover. In Hybrid revascularization patients, dedicated peri-operative anti-platelets regimen was used.
Conclusion: Recently, there is a clear ambition to combine endovascular procedures during cardiovascular surgery, therefore the need for hybrid suites will grow until these hybrid rooms will be an integral part of every cardiovascular center. The new concept will enable new cardiac surgery therapies and will play a major role in minimally invasive surgery. Careful planning and professional expertise is a key factor for every hybrid room project. The hybrid operating room provides a larger safety net for the patients and by that enables treating safely higher risk patients.

Surgical Treatment of Q-Fever Endocarditis

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Background: Q fever is considered endemic in Israel and Q fever endocarditis is a potentially fatal disease. To assess the indication for surgical treatment and outcome we did a retrospective study in the Sheba Medical Centre.

Methods: We therefore observed, over a 7-year period, a consecutive series of eight patients, who underwent valve surgery due to Q-fever endocarditis in our cardiac surgical department.

Results: Between May 2004 and September 2011, we performed a total of 137 valve procedure due to endocarditis. Among them 8 cases (5.84%) of Q fever endocarditis were diagnosed in 5 male and 3 female patients aged 43 to 65 years. We performed 5 AVR (including 2 root replacements with composite graft), 2 MVR and 1 AVR+MVR. We observed 3 native valve and 5 prosthetic valve endocardiditis. Echocardiography mostly showed paraprosthetic leak or bioprosthetic deterioration with few signs of endocarditis, highlighting cardiac vegetation and minimal abscess in 2 patients. Blood culture results remained negative in every patient. The diagnosis was assessed preoperatively in 7 patients and discovered postoperatively after routine bacterial analysis of valve specimens in 1 patients. In all instances, Coxiella burnetii was identified by serological investigation. All patients received prolonged oral specific antibiotics (doxycycline and hydroxychloroquine) under serologic guidance. We observed no operative mortality and 1 in-hospital death. Mean follow-up was 36 ± 23 months. No late death was occurred. Prosthetic valve function was normal.

Conclusions: Q fever endocarditis in Israel is quite frequent disease. Diagnosis is difficult and should be suspected in patients with abnormal native or prosthetic valves without leukocytosis and negative blood cultures. In such patients should prompt serologic testing. Surgical treatment is good option for Q-fever endocarditis.

The Efficacy and Safety of a Novel Minimally-Invasive Thoracotomy for Creation of Pericardial Window

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Background: There are two main approaches for creating a pericardial window: a thoracic approach or a sub-xiphoid approach. The currently preferred method for thoracic approach is video-assisted thoracoscopy. Each of the above mentioned approaches has its limitations. We have therefore developed a simple mini-thoracotomy approach through a parasternal vertical approach, 6 cm un length, between ribs 4-5, for creation of pericardial window in a size of more than 3x4 cm in patients with chronic large pericardial effusion (malignant and non-malignant), and evaluated the efficacy and safety of this unique approach.
Methods: We retrospectively analyzed the medical records of 30 patients (13 males) who underwent pericardial window from September 2001 to December 2010 for long-standing, symptomatic, large pericardial effusion. Procedures were done under TEE guidance. Clinical follow up was done on those discharged alive.
Results: The mean age was 63±17, median 60, range 27-90 years. Six patients had malignant effusions, and the diagnostic yield was 100%. The median procedure length was 65 minutes, and 840 ml of pericardial fluid were evacuated on average. Five patients died in-hospital due to progression of their malignant process. Procedural complications were: 1 pneumothorax, 1 patient had hypotension during surgery, 1 developed atelectasis and 5 acute renal failure post surgery. Median length of hospital stay post procedure was 7.5 days, range 5-44 days.
Conclusions: The parasternal vertical approach for creation of pericardial window is simple, safe and efficacious in all the patients in our series, and results in long-term symptomatic improvement, specifically in patients with non-malignant large pericardial effusions.

Recent Experience with the "On-X" Mechanical Heart Valve Prosthesis

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Introduction: The On-X is newly presented mechanical valve prosthesis. This valve is declared to have superior performance - both hemodynamically and biologically (hemolysis and thrombogenicity) - than competitor valves. We show herein our three years' experience with this newly developed valve.
Patients: From August 2008 till Oct. 2011 - 27 On-X valves were implanted in 26 patients in our institution. Seventeen Aortic valves were implanted, 7 of them in concomitance with other cardiac procedure (4 MVR, 2 Ascending Aorta replacement, one Tricuspid valve repair). Ten mitral valves were implanted, of which 8 were implanted concomitantly with other valve operation (2 AVR, 2 composite AVR, 4 Tricuspid valve annuloplasty). Nine of these operations were re-do cases, two involved CABG, two involved MAZE procedure and one was a replacement of Aortic valve during endocarditis. Anti coagulation policy included INR 2-3 for isolated Aortic valve patients, and 2.5-3.5 for Mitral or double valve patients.
Results: One patient (AVR for endocarditis) died with postoperative multi organ failure. There was no other hospital or 30 days mortality. Except from one case of hemodialysis (the deceased patient), and one case of pacemaker implantation (a MVR case) - no other serious complications occurred. Two months to three years postoperative ECHO examinations - revealed excellent valve performance, with no significant intra or paravalvular leaks. Pressure gradients were at maximum of mild stenosis for all valves sizes in both positions (Peak AV gradient 19+/-8mmHg, mean MV gradient 5+/-2mmHg). There were no reoperations for any reason up to three years of follow up. Follow-up was completed for 23 patients (92%). There were no cases of bleeding that required hospitalization, nor thromboembolic or severe hemolysis events were reported.
Conclusions: Short and midterm results for the On-X valves are excellent, in both Aortic and Mitral position.

Selected Cardiac Surgical Patients Can be Managed Safely in General Recovery Units

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Background: As cardiac surgical patient population gets older and more complicated, intensive care unit (ICU) length of stay increases. As a result, ICU beds became a valuable resource. We evaluated the feasibility of managing cardiac surgical patients in the immediate post-operative period in the general recovery unit instead of ICU.
Methods and Results: between December 2010 and November 2011, 54 cardiac surgical patients were managed in the general recovery unit, at the immediate post-operative period, instead of been treated in the cardiovascular ICU. 47 patients (87%) underwent CABG, out of which 3 (5.5%) underwent OPCAB. Five patients (9.3%) underwent a valve operation or valve and CABG, and 2 patients (3.7%) underwent other cardiac operations. Mean age was 63.6 years and mean EUROSCORE was 5.21% .Mean post-operative length of stay was 5.1 days. One patient (1.8%) died after discharge. One patient (1.8%) had TIA, 1 patient (1.8%) had temporary post-operative renal impairment and 1 patient (1.8%) had post-operative sepsis. Twelve patients (22.2%) had post-operative atrial fibrillation. No other complications were observed. Forty four patients (81.5%) were transferred directly to the department's step-down care unit and did not require any ICU hospitalization.
Conclusions: managing cardiac surgical patients in the general recovery unit has no impact on survival or complication rate. In an Era of ICU resources shortage, selected cardiac surgical patients can be safely managed in general recovery units with excellent outcome.