Results: Indications for PVR were valvular regurgitation (n=6), obstruction (n=3), and both (n=1). Valve types were St. Jude (n=7), Starr-Edwards (n=2), and Bjork-Shiley (n=1). In 6 pts, the mechanical PVR was placed within a conduit. Concomitant mechan- ical tricuspid valve replacement (St. Jude) was performed in 6 pts. Postoperatively, all but 1 were anticoagulated with warfarin. During late follow-up (8.3 ± 7.7 yrs, max 25yrs), 1 pt required repeat PVR for outgrowth of prosthesis 25yrs postoperatively, and 1 pt with nonprosthetic anastomosis valve function underwent biventricular failure 3.5yrs postoperatively. The average mean gradient across the mechanical PVR by echocardiography in the remaining 8 pts was 11 ± 7 mmHg. There were no perivalvular leaks or vegetations, and no evidence of pannus formation or pro- thesis dysfunction. There were 3 late minor bleeding events (epistaxis in 2 and men- orhagia in 1). There was 1 sudden late death 15yrs after PVR, and 1 death from unknown causes in the aforementioned pt with outgrowth of the mechanical PVR. 5.5yrs post re-PVR with a biopsyprosthesis. There were no cases of pulmonary emboli or PVR thrombosis.

Conclusions: Mechanical PVR appears to provide excellent durability and hemodynamic results without mechanical valve failure or valve thrombosis in this small series. Mechan- ical prostheses should be considered for PVR in selected pts, particularly those who require chronic warfarin anticoagulation for other reasons.

Poster Session

1152 Heart Failure, Exercise, and Risk Factors in Congenital Heart Disease
Tuesday, March 09, 2004, Noon-2:00 p.m.
Morial Convention Center, Hall G
Presentation Hour: 1:00 p.m.-2:00 p.m.

Thromboembolic Events Among Children With Cardiomyopathy: Results From the National Australian Cardiomyopathy Study
Robert G. Weintraub, Patty Chondros, Alan Nugent, John Carlin, Piers E.F Daubeny, National Australian Child Cardiomyopathy Study, Melbourne, Australia

Background: Subjects with cardiomyopathy (CM) are at risk from thromboembolism. There is little information about predisposing factors and the magnitude of the risk in chil- dren.

Methods: The National Australian Cardiomyopathy Study is a population-based registry, including all children in Australia with primary CM who presented at 0-10 years of age. Cases were classified according to WHO criteria. A thromboembolic event was defined as the finding of intracardiac thrombus, or onset of organ dysfunction related to an embolic event. Risk factors examined included CM type, congestive heart failure (CHF) at diagnosis, duration of inotropic therapy, mechanical ventilation, ICU and hospi- tal stay at presentation. Children not surviving 24 hours from presentation were excluded from survival analysis. Study end-points were death or transplantation.

Results: There were 314 patients diagnosed with CM during the study period, of which 135 were included in survival analysis of these, 19 (6.4%) of these developed throm- boembolic complications, including 14/172 (8.1%) with dilitated CM, 3/39 (7.7%) with unclassified CM, 1/122 (0.8%) with restrictive CM and 1/80 (1.2%) with hypertrophic CM (p=0.02 compared to other cases). 6 of 19 (31.6%) of thromboembolic events occurred <2 days of hospital stay and 14 (73.7%) occurred >30 days. CHF at presentation was related to risk of thromboembolism (hazard ratio 5.0; 95% CI: 1.6-18.1). The one and 5- year survival free from thromboembolic events were 93% (95% CI: 89-96%) and 91% (95% CI: 84-95%), respectively, for children with dilitated CM, and 92% (95% CI: 76-97%) for children with other CM. Three (13%) of the 23 children with unclassified CM had embolic phenomena included in cerebrovascular event in 5 cases and a pulmonary embolus in 1. The risk of death or transplantation was significantly increased for all study patients with thromboembolism (hazard ratio 4.2; 95%CI: 1.6-11.2) as well as for those with dilitated CM alone (hazard ratio 4.6, 95% CI: 1.4-16.4).

Conclusions: Thromboembolism occurs in up to 9% of children with CM within one year of diagnosis and is related to early CHF and CM type. Thromboembolic complications occur early and are associated with an increased risk of death or transplantation.

1152-201 N-Terminal Pro-B-Type Natriuretic Peptide Differentiates Lung From Heart Disease in Infants With Respiratory Distress
Shimon Cohen, Chaim Springer, Zeev Perles, Azaria JUT Rein, Avraham Avital, Zvi Argaman, AmirAm Nir, Hadassah University Hospital, Jerusalem, Israel, Shaarei Zedek Medical Center, Jerusalem, Israel

Background: Respiratory distress (RD) is a common symptom in infants. RD is usually caused by lung disease, but can also be a result heart disease. It is often difficult to determine the cause of RD. N-terminal pro-B-type natriuretic peptide (N-BNP) is co- secreted along with BNP from cardiac myocytes. Like BNP, N-BNP is a marker for car- diac volume and pressure overload.

Aim: To determine whether N-BNP levels can differentiate between lung disease and heart disease in infant with RD.

Methods: Infants (age 1-36m) who presented at Hadassah University Hospital with RD underwent physical examination, chest X-ray, arterial blood gases and echocardiogram. Control N-BNP values were obtained from age-matched babies with no acute illness and no history or signs for heart or lung disease. Plasma N-BNP levels were measured by Electrochemiluminescence immunoassay (Roche, Germany).

Results: There were 18 infants with lung disease (laryngitis, pneumonia and RSV bron- chiolitis), 19 infants with heart disease (myocarditis, dilated cardiomyopathy, atrio-ventricu- lar canal, hypertrophic cardiomyopathy and ventricular septal defect) and 16 healthy infants. Infants with respiratory distress due to heart disease had significantly higher plasma N-BNP than infants with respiratory distress due to lung disease or control infants (p<0.001 vs lung and vs control; #p<0.05 vs control).

Conclusions: Plasma N-BNP can differentiate infants with RD due to heart disease form infant with RD due to lung disease.

Group Number Age-months mean(±sd) Respiratory rate mean(±sd) O2 saturation mean(±sd) N-BNP (pg/ml) median
Control 16 14.3(5.4) 367.8(5) 97(1.4) 164 62(16.1) 94.3(37.1) 311
Lung 18 9.2(5.9) 62(16.1) 94.3(37.1) 311
Heart 19 11.9(12.3) 68(15.7) 86.4(7.4) 1540* 68(15.7) 94.3(37.1) 311

1152-207 Brain Natriuretic Peptide Correlates With Myocardial Performance Index in Congenital Heart Disease Patients
Alice A. Perlowski, John S. Child, Robert S. Ross, Pamela D. Miner, David Geffen School of Medicine-UCLA Medical Center, Los Angeles, CA

Background: The myocardial performance index (MPI) is an echocardiographic Doppler-derived measure of ventricular function that has been previously validated in con- genital heart disease (CHD) patients. It may be preferred over conventional non-invasive measures of ventricular function in patients with complex anatomy, since it is neither dependent on geometric shape nor heart rate. Although Brain Natriuretic Peptide (BNP) is well described as a predictor of systolic and diastolic dysfunction in anatomically cor- rect hearts, it is unclear how it relates to MPI in those with CHD.

Methods: We prospectively evaluated 54 adult patients with a broad range of both cyan- otic and noncyanotic heart disease. Included were both surgically repaired and unre- paired hearts. Levels of BNP were measured in all subjects using standardized assays. Doppler echocardiography was performed on the study subjects within six months of the BNP assay. No subject had a change in functional clinical status during this interval. Echo images were evaluated by an experienced observer blinded to BNP results and clinical status. The MPI was calculated (myocardial ejection fraction -1/ventricular ejection time, divided by ventricular ejection time). EF was calculated with standard methodology by the same observer.

Results: Of a total of 54 patients with measurable left ventricular (LV) or univentricular (UV) EFs, 23 had adequate data to calculate LV or UV EFs. Of these, 9 had measurable right ventricular (RV) EFs, 23 had adequate data to calculate RV MPIs. BNP was found to be significantly correlated with LV/LV EF (r=0.461 with p=0.006) and RV MPI (r=0.748 with p<0.0001) while LV/LV EF and RV EF had no significant correlation with BNP (r=- 0.189, p=0.172; r=-0.066, p=0.729, respectively) using a Pearson’s correlation coeffi- cient test.

Conclusions: In patients with CHD, BNP significantly correlates with MPI but not with left, right, or univentricular EF. This appears to be particularly true in the case of geometrically...