

Hospital Risk Factors for Patients Submitted to Heart Valve Replacement with St Jude-Biocor Bovine Pericardium Bioprosthesis

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Introduction: Differences in characteristics of the populations submitted to heart valve replacement can explain the variability of results observed between studies. This study was designed to identify demographic, clinical and surgical characteristics of patients related to increased hospital mortality, referred as risk factors. **Methods:** Between September 1991 and December 2005, 703 patients submitted to implant of St Jude-Biocor bovine pericardial cardiac valve prosthesis were included. Analysis was retrospective. Implants were aortic in 392 (55.8%) patients, mitral in 250 (35.5%) and combined in 61 (8.7%); 506 (71.9%) patients underwent heart surgery for the first time, 142 (20.1%) had undergone one heart surgery and 55 (7.8%) had undergone two or more cardiac surgeries. Primary outcome was hospital mortality and risk factors considered for analysis were: age, gender, body mass index, functional class (NYHA), LV ejection fraction, valve replaced, systemic hypertension, diabetes, renal function, pre-op arrhythmia, previous cardiac surgery, concomitant tricuspid or coronary surgery, and surgical priority. Univariate and multivariate logistical regression were used to identify increase risk for individual factors and odds-ratio (OR) established for each variable. **Results:** Hospital mortality was 14.3% (101 out of 703 patients). Characteristics related to increase risk were emergence surgery (OR=10.87; p<0.001), dialysis (OR=6.10; p=0.053), age >80 years (OR=6.10; p=0.004), creatinine >2.4 mg/dL (OR=5.35; p=0.004), functional class IV (OR=4.20), concomitant tricuspid surgery (OR=3.71; p<0.001), combined valve replacement (OR=2.86), previous cardiac surgery >2 (OR=2.53; p=0.005) and female gender (OR=2.43; p<0.001). **Conclusion:** Our study confirmed risk factors identified in other surgical series. Mortality rate observed is accepted by literature and is justifiable due to the high prevalence of risk factors. Specific medical programs may be developed to neutralize specific factors in order to improve surgical outcome.

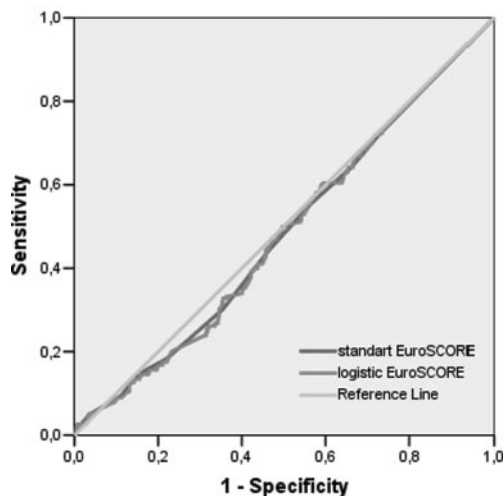
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BNP is Better than EUROSCORE in Predicting Mortality After Surgery for Valvular Heart Disease

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Background: B-type natriuretic peptide (BNP) has been proved to have diagnostic and prognostic significance in heart failure due to ischemic or dilated cardiomyopathy, EUROSCORE was developed to predict peri-operative mortality after cardiac surgery. We compared both as to predict intra-hospital mortality after corrective cardiac surgery for valvular heart disease (VHD). **Methods:** We prospectively analyzed 382 patients between april 2006 and april 2009, all undergoing surgical correction of VHD, mean age 55.1±16.2 years, 47.2% male, 91.6% elective surgery, 59% of rheumatic etiology. EUROSCORE additive and logistic euroscore was made according to current publications, and BNP dosage was made previously to surgery. End-point was intra-hospital mortality. Discriminative capacity of EUROSCORE and BNP were analysed by area under ROC curve in program SPSS 13.0. **Results:** Median BNP was 307.5 (Interquartile range-IQR-140-700), median additive EUROSCORE was 3.0 (IQR 0-5) and logistic EUROSCORE was 2.08% (IQR 0.88-4.38). Statistical analysis for BNP - C: 0.69 (IC: 0.62-0.76) P<0.001, additive EUROSCORE C: 0.44 (IC: 0.37-0.51), p=0.14 logistic EUROSCORE C: 0.43 (IC: 0.37-0.50) p=0.09. In univariate analysis, BNP had a hazard ratio (HR) of 4.38 (IC 95% 2.55-7.54; p<0.001), additive EUROSCORE HR 0.94 (IC 95% 0.86-1.03; p=0.21) e logistic EUROSCORE HR 0.42 (IC 95% 0.91-1.04; p=0.42). **Conclusion:** For this population of VHD patients, BNP levels were better than EUROSCORE in predicting in-hospital mortality after cardiac surgery.

EuroSCORE vs Hospital Mortality



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Risk Factors for Cardiac Valve Replacement with St Jude Mechanical Prosthesis

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Introduction: Identification of risk factors for cardiac surgery can improve surgical results. Our objective is to identify factors related to increased hospital mortality for patients who underwent cardiac mechanical prosthesis implant. **Methods:** Retrospective study included 335 consecutive patients who underwent implant of St. Jude Medical mechanical prosthesis in 9 years period (between December 1994 and September 2005). Valve implants were 158 (47.1%) aortic, 146 (43.6%) mitral and 31 (9.3%) combined. Characteristics analyzed in relation to hospital death were: gender, age, body mass index, NYHA functional class, ejection fraction, type of valve operation, systemic hypertension, diabetes, creatinine, preoperative arrhythmia, concomitant coronary bypass or tricuspid valve surgery, previous valve surgery and operative priority. Logistical regression was used in data analysis and odds-ratio with a 95% confidence index (OR; 95% CI) calculated for each factor. **Results:** There were 13 (3.88%) deaths. Increased hospital mortality risk was related to increased creatinine (P<0.05), ejection fraction <30% (P<0.001), mitral valve lesion (P<0.05), concomitant coronary surgery (P<0.01), previous cardiac surgery (P<0.01) and reoperation (P<0.001). Increased OR was identified for previous cardiac surgery (5.36; 0.94-30.56), combined revascularization (5.28; 1.51-18.36), previous valve surgery (4.69; 0.93-23.57) and concomitant tricuspid annuloplasty (3.72; 0.75-18.30). **Conclusion:** Mortality observed compares with literature and risk factors identified allows an improvement in pre and intra-operative management of patients that can contribute to reduction of risk in cardiac valve replacement.

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Procalcitonin is a Marker of Infection After Surgery for Valvular Heart Disease in a Predominately Rheumatic Population

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Introduction: The systemic inflammatory response (SIRS) that ensues after cardiac surgery (CS) makes the diagnosis of post-operative infections (POI) difficult, specially in patients with inflammatory conditions such as rheumatic fever (RF). In valvular heart disease (VHD) patients this diagnosis is even more critical because of the possibility of early endocarditis. We studied procalcitonin (PCT), a marker that is elevated in bacterial infections but not in SIRS in a population of VHD patients of predominant rheumatic etiology. **Methods:** We followed prospectively 178 consecutive patients submitted to CS due to VHD between 12/2004 and 06/2006, mean age 47±21.6 years, 73% female, 72% of rheumatic etiology, 100% with heart failure functional class III/IV. PCT dosages were made at the pre-operative period, 2nd post-operative (PO) day (2ndPO), 4th PO day (4thPO) and 7th PO day (7thPO). C-reactive protein, alpha-1 glycoprotein and erythrocyte sedimentation rate were also measured in all patients, before and after surgery. End-point was the clinical and laboratorial diagnosis of post-operative infection until the 30th PO day. **Results:** Rheumatic patients did not had higher procalcitonin or inflammatory markers levels than non-rheumatic patients at baseline. 34% percent of the patients had a infectious diagnosis until the 30th post-operative day. Most common infections were of the respiratory tract (38%) and surgical wound (17%). Procalcitonin levels were significantly higher in all post-operative days in those patients with a diagnosis of infection until the 30th PO day (graphic 1). Multivariate analysis identified the level of procalcitonin in the 2PO (p=0.006) and cardiopulmonary bypass time (p=0.01) as independent predictors of infection. The other inflammatory markers had similar levels in both groups. **Conclusion:** Procalcitonin levels in the PO2 and cardiopulmonary bypass time are independent predictors of infection in VHD patients of predominant rheumatic etiology.

BNP and EuroSCORE vs Hospital Mortality

