HeartMate® 2 device (HM2, Thoratec Corporation, Pleasanton, CA, USA) implantation. All patients with HM2 implanted in our institution were included. All clinical and ultrasound data were retrospectively collected. Each patient was regularly followed until the end of data collection in April 2015. From January 2008 to December 2014, forty-three patients (39 male, 57±11 yo) with severe myocardopathies (LV Ejection Fraction of 20±5%), mainly ischemic (74%), in bridge to cardiac transplantation (72%), were included. Before implantation, 20 had ICD (16 for prophylactic indication) and 13 had a prior history of sustained ventricular tachycardia (VT). The overall mortality rate was 60% with a mean follow-up of 18±18 months. 12 patients experienced AS in the first 30 days after implantation, with a median delay of 9±8 days. Early AS often occurred in heavier patients (81 vs 69kg, p<0.05) or with larger body surface area (1.99 vs 1.81m², p<0.01), in patients with prior sustained VT (50% vs 22%, p=0.08) or long-term treated by betablocker therapy (75% vs 45%, p<0.00). The cardiomyopathy etiology, the indication of assistance or the emergency of implantation were not associated with early AS, as an AS occurring just prior LVAD implantation (11 patients). No AS occurred under a Betablocker therapy. VT ablation was performed in 10 patients under assistance. The substrate of VT was not related to HM2 cannula. Arrhythmic storm are frequent (28%) in the early period of HM II implantation.

The author hereby declares no conflict of interest

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Can we predict right heart failure after implantable left ventricular assist device?

Marylou Para*, Clément Delmas, L. Bocquillon, Bertrand Marcheix, Jérome Roncalli, Michel Galinier, Camille Dambrin

CHU Toulouse, Rangueil, Toulouse, France

*Corresponding author: para.marylou@wanadoo.fr (Marylou Para)

Objectives The right ventricular failure (RVF) is a severe complication after implantation of a left ventricular assist device (LVAD), difficult to predict and treat. The purpose of this study was to identify risk factors of RVF after mechanical circulatory support.

Methods This is a single-center prospective cohort of patients with long-term electrical intracorporeal continuous flow LVAD type HeartMate II between January 2008 and September 2014. We searched predictors of RVF, defined by a need of inhaled nitric oxide ≥ 248 hours and/or intravenous inotropes ≥ 214 days.

Results 42 devices were implanted in 36 men and 6 women with a mean age of 57.3 years, for 30 ischemic and 12 primitive cardiomyopathies, 10 cases in “Destination Therapy” and 32 cases in “Bridge-to-Transplantation.” The 30-day mortality was 6 patients, 1-year survival of 84%, the mean last of intubation was 7 days and ICU stay of 16.3 days. There were 16 cases of RVF (38.1%). The significantly associated factors (p<0.05) were: subaortic time velocity integral (10.5 versus 13.8cm/s), grade (1.4 versus 0.3) and maximal speed of the tricuspid regurgitation (3 versus 3.5 m/s), fractional shortening (27 versus 36.4%) and surface of the right ventricle (33.4 versus 22cm²), capacity (26.3 versus 18.3mmHg) and mean pulmonary arterial pressures (38.7 versus 27.2mmHg), transpulmonary gradient (11 versus 8.5mmHg), pulmonary arterial resistances (3.7 versus 2.7 UW), right ventricular (26 versus 8.1mmHg) and atrial pressures (11 versus 5.5mmHg), bilirubin (28.3 versus 15.7μmol/l), INTERMACS score (3.3 versus 4.4), non-ischemic etiologies (50 versus 85%) and preoperative inotropic drugs (56 versus 15%).

Conclusion RVF remains a major complication in implantable LVAD. According to the literature, preoperative pulmonary hypertension, right systolic dysfunction and cavitary dilation seem to favor its appearance.

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Mechanical circulatory support and factor VII: effective but (not so) dangerous?

Marylou Para*, Clément Delmas, Hélène Charbonneau, Bertrand Marcheix, Jérôme Roncalli, Michel Galinier, Camille Dambrin

CHU Toulouse, Rangueil, Toulouse, France

*Corresponding author: para.marylou@wanadoo.fr (Marylou Para)

Objectives Hemorrhagic complications are a main concern after mechanical circulatory support, alternative to heart transplantation, and often involve multiple transfusions and re-interventions at the initial phase. The recombinant activated factor VII (NovoSeven®), expensive drug with proven blood savings in some coagulopathies, can help control mediastinal bleeding but runs the risk of pump thrombosis.

Methods This is a single-center prospective cohort of patients with long-term electrical intracorporeal continuous flow left ventricular assist device (LVAD) type HeartMate II, between January 2008 and September 2014. We studied the post-operative use of blood products and their derivatives, especially NovoSeven®, and its consequences on the level of bleeding and thromboembolism.

Results 42 devices were implanted in 36 men and 6 women with a mean age of 57.3 years, for 30 ischemic and 12 primitive cardiomyopathies, 10 cases in “Destination Therapy” and 32 in “Bridge-to-Transplantation”. The 30-day mortality was 6 patients, 1-year survival of 84%, the average intubation period of 7 days and ICU stay of 16.3 days. The average volume of thoracic drainage was 3036mL. The average transfusion per patient was 10.4 red blood cells, 7.1 fresh frozen plasma, 16.3 platelet units, 2.4g of fibrinogen (Clottafact®), 1162 IU of clotting factors (Octaplex®) and 2.9g of NovoSeven®, 17 patients (40.5%) received NovoSeven® ranging from 4 to 15mg) including 8 during the procedure because of precarious hemostasis. Only 6 patients (14.3%) required reoperation for tamponade within J0 and J9, including 4 who had NovoSeven® prior. 6 patients (14.3%) had an intracardiac thrombus remote, 3 had received NovoSeven®.

Conclusion An aggressive transfusion policy after LVAD can greatly limit the rate of surgical re-openings for bleeding, recognized as a risk factor for wound infection, without causing major thrombotic event.

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Pulmonary hypertension and transcatheter aortic valve implantation: prevalence, prognosis impact and evolution

Bastien Glinel*, Eric Durand, Hélène Eltchaninoff, Fabrice Bauer

CHU Rouen, Rouen, France

*Corresponding author: bastien.glinel@gmail.com (Bastien Glinel)

Background In patients undergoing transcatheter aortic valve implantation (TAVI), measurement of pulmonary pressure helps to stratify clinical risk. However, data may lead to misclassification and role of pulmonary vascular resistance (PVR) has never been investigated.

Methods and results One hundred and seventy one consecutive patients with significant symptomatic aortic stenosis who prospectively were scheduled for TAVI underwent preoperative right-sided heart catheterization. Of these, 99 (57.9%) had pulmonary hypertension and 40 experienced cardiac events during a 1-year follow-up (readmission for heart failure in 16 patients, all cause death in 24). Patients who had events exhibited a higher both peak systolic PAP (46.9±12.1 versus 40.8±12.0mmHg, p=0.026) and transpulmonary pressure gradient (12.6±4.5 versus 10.1±3.7mmHg, p=0.011), as well as increased PVR (2.7±1.0 vs 2.0±0.8WU, p=0.002). Systolic PAP>40mmHg and PVR>2.05 WU were selected by receiver operating curve for predicting cardiac events. By multivariate Cox regression analysis, independent predictors of cardiac events were: body mass index (p=0.005), mitral regurgitation (p=0.018), and a spectrum of systolic PAP>40mmHg with PVR>2.05 WU (2.6 [1.39–4.89], p=0.003).

Conclusion Right heart catheterization could be useful to identify a high-risk subset of aortic stenosis patients candidate for TAVI and help for clinical decision.

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