

Cardiac Surgery, continued

acute patients had a trial of tPA. Echocardiography was done as follow-up post thrombolytics to determine response to therapy.

RESULTS: 27 embolectomies in 26 patients was performed over a 4 year period. 22 were acute emergency embolectomies and 5 elective thromboendarterectomies. There were 2 hospital deaths in the acute group for a mortality of 9.5%. There have been no late deaths in either group with a mean follow-up period of 18 months. All the patients discharged alive are home. The acute embolism patients have not had evidence of RV dysfunction or chronic disability. All the chronic thromboendarterectomy patients have improvement in quality of life indicators and decreased home oxygen dependency.

CONCLUSION: Present surgical techniques for pulmonary embolectomy allow for a safe and effective therapy that focuses on right ventricular preservation, and avoidance of trauma and edema of the pulmonary arteries and parenchyma. Surgery may be appropriate for life-threatening pulmonary embolism where thrombolytics are either contraindicated or ineffective.

CLINICAL IMPLICATIONS: Current surgical pulmonary embolectomy techniques no longer confines this operation to a treatment of last resort.

DISCLOSURE: Alan Hartman, No Financial Disclosure Information; No Product/Research Disclosure Information

CARDIOPULMONARY BYPASS-INDUCED VASODILATORY HYPOTENSION: PREDICTORS AND TREATMENT WITH ARGININE VASOPRESSIN

Keith B. Allen MD, FACS* Michael Borkon MD Scott Stuart MD Emmanuel Daon MD Alexander Pak MD George Zorn MD Mid America Heart Institute, St. Luke's Medical Center, Kansas City, MO

PURPOSE: Cardiopulmonary bypass induced vasodilatory hypotension which requires treatment with pressor agents to maintain an adequate perfusion pressure is more frequently seen particularly in light of the increased use of angiotensin-converting enzyme inhibitors. We investigated the incidence and predictors of cardiopulmonary bypass induced vasodilatory hypotension and evaluated the safety and efficacy of using low-dose arginine vasopressin as a treatment option.

METHODS: Consecutive, unselected patients undergoing cardiac operations using cardiopulmonary bypass were studied prospectively (n=152). Patients experiencing vasodilatory hypotension (defined as mean arterial pressure \leq 50 mmHg) during cardiopulmonary were supported with intravenous vasopressin (0.1 Units/minute) as first line therapy. The efficacy and safety of vasopressin at maintaining mean arterial pressures \geq 70 mmHg during cardiopulmonary bypass in addition to multivariable predictors of vasodilatory hypotension were analyzed.

RESULTS: Vasodilatory hypotension occurred in 31%(47/152) of patients (mean arterial pressure 40 ± 6 mmHg) during cardiopulmonary bypass. Maintenance of a mean arterial pressure >70 mmHg (mean arterial pressure 83 ± 10 mmHg) during cardiopulmonary bypass was achieved in 96%(45/47) using vasopressin alone ($p<0.0001$). Vasopressin infusion averaged 6.0 ± 9.4 hours (range 0.08-48 hours). Of the patients who received radial artery grafts, 25%(14/56) experienced vasodilatory hypotension and were effectively managed with vasopressin without evidence spasm, myocardial infarction, or hypoperfusion syndrome. Complications between groups were similar. Multivariable predictors of vasodilatory hypotension were age >65 (odds ratio 6.5;95% confidence interval 1.5-28.4; $p=0.01$) and the use of preoperative angiotensin-converting enzyme inhibitors (odds ratio 2.9; 95% confidence interval 1.1-7.7; $p=0.04$).

CONCLUSION: Risk factors for cardiopulmonary induced vasodilatory hypotension include increased age and preoperative use of angiotensin-converting enzyme inhibitors. Arginine vasopressin is an effective and inexpensive (\$10 US) treatment for cardiopulmonary bypass induced vasodilatory hypotension.

CLINICAL IMPLICATIONS: Vasodilatory hypotension is frequently encountered during cardiopulmonary bypass. Arginine vasopressin, as an alternative to traditional catecholamine agents, is a safe and effective management option.

DISCLOSURE: Keith Allen, No Financial Disclosure Information; No Product/Research Disclosure Information

SURGICAL REVASCLARIZATION IN PATIENTS WITH DIALYSIS-DEPENDENT RENAL FAILURE: ON-PUMP VS OPCAB

Li Zhang MD Paul J. Corso MD Peter Hill MD Jorge M. Garcia MD Elizabeth Haile MBS Ammar Bafi MD Xiumei Sun PhD* Washington Hospital Center, Washington, DC

PURPOSE: Patients with end-stage renal disease (ESRD) are increasingly referred for coronary artery bypass graft (CABG) and their early outcome is less favorable. Off-pump CABG (OPCAB) has achieved encouraging results in high-risk patients. Therefore, we designed this retrospective study to test the hypothesis that OPCAB reduced surgical risks in dialysis patients.

METHODS: From January 2000 to December 2005, 294 patients who required hemodialysis regularly received isolated CABG at the Washington Hospital Center. Among them, 168 underwent OPCAB (off-pump group), and 126, CABG with cardiopulmonary bypass (CPB) (on-pump group). The in-hospital outcomes were analyzed. The Social Security Death Index was used to calculate the long-term survival of both groups.

RESULTS: The two groups were comparable in terms of preoperative characteristics. The Parsonnet's Bedside Score of the off-pump group was similar to that of the on-pump group (32.0 vs 32.0, $p = 0.57$). The in-hospital mortality of the off-pump group was significantly lower than that of the on-pump group (5.4% vs 11.9%, $p = 0.04$). Patients undergoing OPCAB received less red blood cell transfusion, and they were less likely to develop perioperative myocardial infarction (MI). Logistic regression analysis revealed that use of CPB independently predicted in-hospital mortality ($p < 0.01$, odds ratio = 5.0, 95% confidence interval: 1.78-13.85) and perioperative MI ($p = 0.03$, odds ratio = 5.1, 95% confidence interval: 1.18-22.40). Long-term survival of initial hospital survivors was not different at 2 years and 4 years period between the two groups in terms of long-term survival.

CONCLUSION: Our data suggest that OPCAB is more than a safe alternative to on-pump CABG in dialysis patients. Avoiding CPB results in substantial benefits on early postoperative recovery in this population.

CLINICAL IMPLICATIONS: Patients with dialysis undergoing CABG should be considered off-pump surgery.

DISCLOSURE: Xiumei Sun, No Financial Disclosure Information; No Product/Research Disclosure Information

**Critical Care Outcomes
2:30 PM - 4:00 PM**

IMPACT OF OBESITY ON INTENSIVE CARE MORBIDITY AND MORTALITY: A METAANALYSIS

Morohunfolu E. Akinnusi MD, MRCP* Lilibeth A. Pineda MD Ali A. El Solh MD, MPH University at Buffalo, Buffalo, NY

PURPOSE: To evaluate the impact of obesity on ICU mortality, duration of mechanical ventilation, and ICU length of stay among critically ill medical and surgical patients.

METHODS: Descriptive and outcome data regarding ICU mortality and morbidity were extracted by two independent reviewers, according to predetermined criteria. Data were analyzed using a random effects model.

RESULTS: Fourteen studies met inclusion criteria with 15,347 obese patients representing 25% of the pooled study population. Data analysis revealed that obesity was not associated with an increased risk of ICU mortality (relative risk (RR) 1.00, 95% confidence interval (CI) 0.86-1.16; $p = 0.97$). However, duration of mechanical ventilation and ICU length of stay were significantly longer in the obese group by 1.48 days (95% CI, 0.07-2.89; $p=0.04$) and 1.08 days (95% CI, 0.27-1.88; $p=0.009$), respectively, compared to the nonobese group. In a subgroup analysis, an improved survival was observed in obese patients with BMI ranging between 30 and 39.9 kg/m² compared to nonobese (RR 0.86, 95% CI 0.81-0.91; $p<0.001$).

CONCLUSION: Obesity in critically ill patients is not associated with excess mortality but is significantly related to prolonged duration of mechanical ventilation and ICU length of stay. Future studies should target this population for intervention studies to reduce their greater resource utilization.

CLINICAL IMPLICATIONS: While mild and moderate obesity may be protective during critical illness, morbid obesity does not have an