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Effects of continuous positive airway pressure on blood pressure and prognosis in hypertensive patients with coronary artery bypass grafting and obstructive sleep apnea
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OBJECTIVES Previous studies have documented that obstructive sleep apnea (OSA) increases the incidence of hypertension, respiratory failure and unexpected post-operative deaths during night in coronary artery bypass grafting (CABG) patients. However, it lacks a prospective, controlled study to confirm the phenomenon observed in clinical practice. In the present study, our aim was to investigate the effects of continuous positive airway pressure on blood pressure and major adverse cardiovascular events (MACEs) in hypertensive patients with CABG and OSA.

METHODS We conducted a prospective, controlled study in 106 patients. The subjects received CPAP treatment were defined as CPAP group, whereas those refused to use CPAP were served as controls. Blood pressure was measured by 24 h ambulatory blood pressure at baseline and at the end of study. Patients were followed up for 5 years, and MACEs were analyzed.

RESULTS Ninety-five patients completed the study. CPAP group and control group had similar characteristics at baseline. Compared with the control group, the 24 h SBP in the CPAP group had a significantly improvement (Control: 145.2 ± 8.5 mm Hg, CPAP: 140.4 ± 7.3 mm Hg, P = 0.036; Δ: 6.5 mm Hg [95% CI, 1.7 to 8.3], P = 0.015), but the 24 h DBP had no significant difference. The rate of hypertension control was improved in the CPAP treatment (CPAP, 78.0% vs. Control, 53.7%; P = 0.027). Compared with controls, the proportion of non-dipping hypertension had a markedly improvement in the CPAP group (Control, 42.5% vs. CPAP, 18.3%; P = 0.032). MACEs in the CPAP group were significantly lower than in the control group (20.4% vs. 10.9%; P = 0.024).

CONCLUSIONS Long-term application of CPAP in hypertensive patients with CABG and OSA receiving standardized antihypertensive treatment, compared to controls, significantly reduced 24-h SBP, improved hypertension control and status of non-dipping hypertension, and decreased the MACEs.

GW26-e0253

Outcomes of Mitral Valve Surgery for Mitral Stenosis
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OBJECTIVES Mitral valve replacement procedures with either a bioprosthetic or a mechanical valve are used to treat mitral stenosis. This study aimed to evaluate the outcomes of these two procedures.

METHODS A retrospective cohort study was performed on prospectively collected data involving a total of 195 mitral stenosis patients who have undergone mitral valve replacement with either bioprosthetic (n = 50) or mechanical (n = 145) valves in our institute from 1999 to 2012. Data were analyzed for early and late mortality, NYHA functional classes, pre- and post-operative echocardiographic findings, early and late valve-related complications, and survival. Chi Square test, logistic regression, Kaplan Meier curve, and dependent proportions tests were some of the tests employed in the analysis.

RESULTS Out of 195 patients, 104 (53%) patients could be reached by telephone calls for collecting long-term outcome information. Twelve patients had late mortality, six in the bioprosthesis group and six in the mechanical. One patient had early perioperative mortality. The Late mortality had significant association with post-op stroke (P = 0.001) and post-op NYHA classes III and IV (P = 0.002). Post-op NYHA class was significantly associated with age (P = 0.003), pulmonary disease (P = 0.017), mitral valve type (P = 0.011), mechanical valves better), hypertension (P = 0.01), and post-op stroke (P = 0.017). NYHAClasses were significantly better after the replacement surgeries (P < 0.001). Bioprosthetic valves were significantly associated with worse survival (P = 0.03), worse NYHA post-op (P = 0.011), and more re-operations (P = 0.006); and borderline association with late mortality. Survival was significantly better with mechanical valves (P = 0.03).

CONCLUSIONS Mechanical mitral valve replacement in mitral stenosis patients is associated with less late mortality, better NYHA classes, less re-operation rate, and better survival as compared to bioprosthetic mitral valve replacement. Stroke occurrence is associated with late mortality and worse NYHA classes.

GW26-e1248

Impact of Preoperative Acute Kidney Injury on In-hospital Outcomes in Patients With Type A Acute Aortic Dissection
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OBJECTIVES Acute kidney injury (AKI) is common after surgery for acute aortic dissection (AAD) and increases mortality. However, few data exist on the clinical and prognostic relevance of early preoperative AKI in patients with type A AAD. We aimed to determine the incidence and predictors of preoperative AKI and the impact of AKI on in-hospital outcomes in patients with type A AAD.

METHODS We retrospectively enrolled 128 patients admitted to our hospital within 36 hours from symptom onset and receiving open surgery for type A AAD. The patients were divided into no AKI and AKI groups and staged with AKI severity according to the Kidney Disease: Improving Global Outcomes (KDIGO) criteria before surgery.

RESULTS AKI occurred in 41 patients (29.0%). The incidence of in-hospital complications was significantly higher in patients with preoperative AKI (41.5% vs 9.5%, P < 0.001), including acute renal failure (19.5% vs 2.2%, P < 0.001) and renal infection (7.3% vs 0, P = 0.012), and it increased with AKI severity (P for trend < 0.001). The maximum levels of body temperature, white blood cell count, and platelet count were significantly correlated with maximum serum creatinine level before surgery. Multivariate analysis indicated that male sex, diastolic blood pressure on admission and bilateral renal artery involvement were independent predictors of preoperative AKI.

CONCLUSIONS Early AKI before surgery was common in patients with type A AAD, and was associated with increased in-hospital complications and enhanced inflammatory reaction. Male sex, diastolic blood pressure on admission and bilateral renal artery involvement were major risk factors for preoperative AKI.

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Incidence, Risk Factors, and In-hospital Outcomes of Acute Kidney Injury Before Thoracic Endovascular Aneurysm Repair in Patients With Type B Acute Aortic Dissection
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OBJECTIVES Acute kidney injury (AKI) frequently occurs after catheter-based interventional procedures and increases mortality. However, the implication of AKI before thoracic endovascular aneurysm repair (TEVAR) of type B acute aortic dissection (AAD) remains unclear. We aimed to determine the incidence, predictors, and in-hospital outcomes of AKI before TEVAR in patients with type B AAD.

METHODS Between 2009 and 2013, we evaluated retrospectively 76 patients who received TEVAR for type B AAD in our hospital within 36 hours from symptom onset. The patients were classified into no AKI and AKI groups, and the severity of AKI was further staged according to Kidney Disease: Improving Global Outcomes (KDIGO) criteria before TEVAR.