

Results: The same console and patient-side surgeon performed all operations. No operative mortality or serious surgical complications were observed. Operating time was shortened significantly for all procedures with considerable learning curve. One patient was converted median sternotomy to aortic perforation, and one patient had hemolyses after mitral valve repair. Two patients had conversions to a mini-thoracotomy in BH-TECAB group. During the follow-up of 40.9 ± 16.5 (1~86) months, no residual shunt, peri-valvular leaks, tumor recurrence occurred. The quality of life outcomes within the 30 days after surgery were excellent. All the patient who accepted robotic coronary surgery underwent CTA or coronary angiography before discharge. And either method showed 100% graft patency. The graft patency was 98.1% at 1 year postoperatively and 97.8% at 2 years. And no more graft occlusion was found at 3 to 5 years. No patient died of major adverse cardiac and cerebral events in the follow-up period.

Conclusions: Our study shows that cardiac surgery with the assistance of robotic technology is safe. The outcomes of robotic heart surgery and follow up results are excellent for selected patients.

GW25-e0772

Risk Factors Of Postoperative Mortality Of Ruptured Abdominal Aortic Aneurysms

Zheng Ziyu, Jianghui Liu, Ruibin Cai, Yingxiang Huang, Zi Ye, Jia Xu, Hong Zhan
First Affiliated Hospital of Sun Yat-sen University

Objectives: Despite significant improvements in surgery, anesthesia, and post-operative critical care, the postoperative mortality rate of ruptured abdominal aortic aneurysm (RAAA) has remained at a high level for several decades. Therefore, we analyze the risk factors associated with the postoperative mortality of RAAA.

Methods: From January 1980 to May 2013, the clinical data of 85 patients who underwent open repair of RAAA were analyzed retrospectively. The risk factors were categorized into disease related and surgery related groups, and analyzed by both univariate and multivariate methods.

Results: The 3-day and the 30-day mortality rates were 18.7% and 35.8%, respectively. On univariate analysis, age, time interval from disease onset to admission, combined with coronary heart disease or chronic obstructive pulmonary disease, cardiac arrest, duration of shock for the 3-day mortality and systolic pressure, time interval from the emergency room (ER) to operation room (OR), operative time, aortic clamping time and hemorrhage volume for the 30-day mortality were statistically significant. On multivariate analysis, age, combined with coronary heart disease, cardiac arrest for the 3-day mortality and time interval from ER to OR, operative time, hemorrhage volume for the 30-day mortality were statistically significant.

Conclusions: To increase the survival rate of RAAA, timely diagnosis and prompt operative control of bleeding for prevention of massive hemorrhage are important.

GW25-e2263

Study the Correlation between Evaluation of Cerebrovascular Function by 320 Dynamic Volume CT and Neurological Complications after Off-pump Coronary Artery Bypass Graft

Qiao Qibo^{1,2}, Bi Qi^{1,2}

¹Capital Medical University affiliated Beijing Anzhen Hospital, ²Beijing Institute of Heart, Lung and Blood Vessel Diseases

Objectives: To investigate neurological complication (NC) and its risk factors after off-pump coronary artery bypass grafting (OPCABG), and study 320 dynamic volume CT evaluation of cerebrovascular function in relevance to OPCABG postoperative NC.

Methods: (1) 813 cases are collected from August 2010 to September 2013 in the Beijing Anzhen Hospital. (2) Record patients general condition, medical history before the surgery. (3) Patients did 320 dynamic volume CT and were evaluated cerebrovascular function, including 320 dynamic volume CT scan, computed tomography angiography (CTA) and computed tomography angiography perfusion (CTP) before the operation. (4) Before the surgery, we evaluated patients with nervous system function with the National Institute of Health Stroke Scale (NIHSS), cognitive function with the Mini Mental State Examination (MMSE) and the Montreal Cognitive Assessment (MoCA), anxiety with the Hamilton Anxiety Scale (HAMA) and depression with the Hamilton Depression Scale (HAMD). (5) 7 days after operation, we evaluated patients with nervous system function, cognitive function, anxiety and depression again. (6) According to whether NC, patients were divided into the case group (190) and control group (623) and analysis of risk factors of NC after OPCABG. (7) Explore the relationship between 320 dynamic volume CT evaluation of cerebrovascular function and postoperative NC.

Results: (1) Postoperative NC morbidity was 23.4% (190/813), among them, the incidence of cerebral infarction was 4.7% (9/190), hypoxic ischemia encephalopathy (HIE) was 10.0% (19/190), delirium was 6.3% (12/190), postoperative cognitive dysfunction (POCD) was 55.3% (105/190), anxiety and depression was 35.3% (67/190). (2) Case group's age, previous cerebrovascular disease history, diabetes, the severe stenosis of extracranial carotid arteries, the severe stenosis of CTA and abnormal CTP were significantly higher than the control group ($P < 0.05$). (3) Logistic regression analysis showed that the male (OR 1.816, 95% CI 1.017-3.244, $P=0.044$), cerebrovascular disease history (OR 1.837, 95% CI 1.075-3.141, $P=0.026$) and CTP abnormalities (OR 3.224, 95% CI 2.073-5.013, $P=0.000$) were independent risk factors for postoperative NC. (4) The rate of occipital lobe CBF, the difference of

temporal lobe, occipital lobe and basal ganglia region TTP and the difference of occipital lobe and basal ganglia region MTT of cases were significantly higher than the control group ($P < 0.05$). The area of temporal lobe TTP difference under the ROC curve was 0.606.

Conclusions: The morbidity of NC after OPCABG was 23.4%. Male, cerebrovascular disease history and CTP abnormalities were independent risk factors for NC after OPCABG. The CTP parameters of the temporal lobe TTP difference forecasted postoperative NC more accurate than other cerebral perfusion parameters.

GW25-e5390

Bleeding and clinical impacts of Pre-clopidogrel exposure in patients undergoing off pump coronary artery bypass: Is there an earlier cut off date?

Liu Wei, Yu Jie Zhou, Shan Gao, Chao Liu, Mei Jia Wang
Capital Medical university, Beijing AnZhen hospital

Objectives: Patients undergoing surgical revascularization with exposure to clopidogrel have an increased risk of bleeding complications and subsequent requirement of blood product transfusions. Off-pump coronary artery bypass surgery (OPCAB) has shown benefits of a lower hemorrhagic occurrence. The purpose of this study is to investigate the bleeding, perioperative ischemic events and long term outcomes of patients undergoing OPCAB with perioperative exposure to clopidogrel. This study is also aimed at finding a possible earlier cut-off date for performing OPCAB while maintaining a balance between a shorter waiting time against the increased risk of bleeding.

Methods: A total of 931 patients included in the study were divided into two groups. Group A includes the 549 patients who received clopidogrel within 7 days before the off-pump CABG surgery. Group B included the remaining 382 patients who received clopidogrel more than 7 days or were clopidogrel naïve. Major bleeding rate of each consecutive date from group A was compared with group B to identify the cutoff date after which the bleeding risk is no longer significant. Day 4 was identified as the cutoff date and group A was then further divided into Day 1-4 (A1) and Day 5-7 (A2). A propensity score matched comparison was performed between group A1 and group B, group A2 and group B. The primary endpoints of this study were major bleeding, reoperation, post-operative multiple types of blood transfusions. Secondary endpoints of this study were ischemic events (acute myocardial infarction, ischemic stroke), and in hospital and 1 year mortality.

Results: Propensity matched analysis showed that patients undergoing OPCAB within 4 days of clopidogrel discontinuation (Group A1) were at a 2.481 fold risk of major bleeding (95% CI 1.619-3.84, $P=0.000$) and 1.996 fold risk of post operative multiple type blood transfusion (95% CI 1.460-2.729, $P=0.000$), patients undergoing OPCAB within 5-7 days of clopidogrel discontinuation (Group A2) were not at higher risk of major bleeding (95% CI 0.858-2.047, $P=0.205$) in comparison with Group B. Compared with group B, reoperation rates were only higher in Group A1 (3.9% vs. 1.3%, $P=0.027$). Group A1, baseline HCT, weight, systolic blood pressure with surgical duration were predictors for major bleeding. Ischemic events and 1 year mortality showed no difference between the groups.

Conclusions: Surgical revascularization after at least 4 days of discontinuing clopidogrel is recommended to avoid further increased risk of bleeding and shorten the waiting time for patients undergoing OPCAB.

GW25-e4320

A prospective randomized controlled study on Median sternotomy closure with titanium plate fixation in high risk patients

Huang Zhifeng¹, Zheng Shaoyi¹, Lai Wen¹, Mai Mingjie², Chen Xinquan², Liu Zuan¹, Chen Huade¹, Chen Han-Xi¹, Ma Lianghua¹, Li Hanhua¹

¹Department of Burns surgery, Guangdong General Hospital, Guangdong Academy of Medical Sciences, ²Department of Cardiovascular surgery, Guangdong General Hospital, Guangdong Academy of Medical Sciences, Guangdong Cardiovascular Institute

Objectives: Median sternotomy remains the preferred technique for access in open heart surgery. Conventional standard for sternal closure remains fixation with 5-11 stainless steel wires. This may sometimes put too much mechanical stress on the wires, leading to wire movement or fracture, sternal instability, mal-union or non-union, and even complicated sternal wound infection and mediastinitis. We studied the sternal closure with titanium plate fixation in high-risk patients to see if it could prevent sternal dehiscence and offer cost-effectiveness.

Methods: Our prospective, randomized, controlled study enrolled the open cardiac surgery patients who were admitted in the Guangdong Provincial Cardiovascular Institute from January 2010 to December 2013. Two hundred patients who were determined preoperatively to be at high risk were randomly assigned to sternal closure with rigid plate fixation (Group R, n=100) or wire cerclage controlled group (Group C, n=100). High risk factor including insulin-dependent mellitus diabetes, obesity, immunosuppression, chronic obstructive pulmonary disease, sternal osteoporosis, irradiation of the operated area, use of bilateral internal thoracic arteries as bypass grafts, decreased or increased body mass and renal failure. Statistical calculations were based on sternal fixation, wound healing, development of infection, sternal healing and long-term follow-up. Age and risk factors of two groups has no difference.

Results: The Group R and the Group C of non healing wounds was significantly different (2% & 12%, $P=0.007$). Non-healing wounds were observed in 2 patients in