GW25-e3115

Transcatheter Closure of Ruptured Sinus Valsalva Aneurysms Using Patent Ductus Arteriosus Occluders

Fang Zhenfei, Huang Yiyuan, Tang Liang, Hu Xinqun, Shen Xiangqian, Tang Jianjun, Zhou Shenghua
Department of Cardiology, The Second Xiangya Hospital of Central South University

Objectives: Percutaneous closure of RSVA was first attempted by Cullen et al in 1994 using a Rashkind umbrella, and since then successful transcatheter closure (TCC) is being increasingly reported with encouraging follow-up results. To date, both large-scale and long-term follow-up results for this technique are scarce. Thus, this study aims to evaluate the safety and efficacy of transcatheter closure of RSVA using Patent Ductus Arteriosus Occluders and to characterize patients' long-term clinical outcomes.
Methods: From 2004 to 2012, 17 patients (8 males, 9 females) were treated with PDA occluders (lifetech Ltd, Shenzhen, China) by antegrade venous approach and were followed for 18-102 months.
Results: Of the total 17 patients, Transthoracic Echocardiography (TTE) revealed the rupture of right coronary sinus into right ventricle in 9 and into right atrium in 4, while non-coronary sinus ruptured into right ventricle in 3 and into right atrium in 1. Most (10/17) were in New York Heart Association (NYHA) functional class III or IV. The Qp/Qs was 1.2 to 3.0 (mean 1.63±0.42). The pulmonary arterial pressures of 10 patients were normal (<25mmHg), 7 were found elevated mildly to moderately, the mean pulmonary artery pressure (MPAP) was 25.82±7.52 mmHg. Aortography showed that the size of the defect was 7.71±2.84 mm (4-15 mm). TCC was attempted using PDA occluders 2-5 mm larger than the aortic end of the defects. The device sizes ranged from 8/6-18/16 mm (median 10/8 mm): 10/8 mm in 7 patients, 12/10 mm in 4 patients, 8/6 mm in 2 patients, 14/12 mm in 2 patients, 18/16 mm in 1 patient. The mean procedure time was 78±32 min, and the fluoroscopy time was 19.1±10.4 min. The procedure was successful in 16 (94.1%), and all of them had a complete occlusion at discharge, including a high-risk patient with poor general condition and severe co-morbidities. The largest size of RSVA been successfully closed was 12mm at the aortic side. It is feasible and effective to perform TCC using PDA occluders in patients of isolated RSVA with aortic end diameter<13mm. The only failure case is due to large size of RSVA, despite deployment of the largest PDA occluder (18/16 mm), there was an occurrence of a moderate residual shunt. On a median follow-up of 42 months, 14 patients were in NYHA class I and 2 were in class II, and there was no residual shunt, device embolization, infective endocarditis, and aortic regurgitation.
Conclusions: This study has proved that transcatheter closure of RSVA is feasible using a PDA occluder with preliminary immediate and long-term follow-up results. It can be a safe and effective alternative to surgical repair for isolated RSVA. Moreover, it is lifesaving for patients who are a high risk due to poor general condition and severe comorbidities. Longer follow-up is required to assess the long-term outcome of this technique.

GW25-e3373

The ultrasonic diagnosis value for the diagnosis of congenital coronary artery fistula, compared with findings of surgery and/or coronary angiography

Sun Zhenxing, Li-Ling, Xie Ming-Xing
Union Hospital of Tongji Medical College, Huazhong University of Science and Technology

Objectives: To evaluate the application of transthoracic echocardiography for the diagnosis of congenital coronary artery fistula.
Methods: The echocardiographic appearances of 63 patients with coronary artery fistulas who had undergone coronary angiography and/or operation in our hospital, were analyzed retrospectively, and the results were compared with findings of surgery and/or coronary angiography.
Results: (1) Right CAFs were detected in thity-three patients (52.4%):eleven of them had drainages to the right atrium,ten to the right ventricle, two to the left ventricle, nine to the main pulmonary artery, and one to the coronary sinus. Left CAFs were detected in twenty-nine patients (46.0%): six of them had drainages to the right atrium,twelve to the right ventricle, one to the left atrium, two to the left ventricle, seven to the main pulmonary artery, and one to the coronary sinus. In one case (1.6%), there is origin in both coronary arteries. Most often the entry point was a single orifice (96.8%),but,rarely,it was multiple (3.2%). Fifty-seven patients were diagnosed simplex coronary fistulas (90.5%). Six patients had other congenital cardiac malformations (9.5%). (2) Twelve patients had also undergo conventional coronary angiography (CAG) before surgery to confirm the diagnosis. (3) The ultrasonographic diagnosis of sixty was in line with surgical findings and/or coronary angiography. The accurate rate for the diagnosis of coronary artery fistula was 95.2%. Preoperative transthoracic echocardiography had three patients who were neglected CAF. The misdiagnosis rate was 4.8%.
Conclusions: Transthoracic echocardiography could be a primary method for diagnosis of congenital artery fistula.

GW25-e0848

The effects of anticoagulant therapy on coagulant state and platelet function following transcatheter closure of atrial septal defect

Chen Guocai, Huang Lan
Cardiovascular Department of Xinqiao Hospital, Third Military Medical University

Objectives: Several studies have demonstrated coagulant system was activated after transcatheter closure of ASD, but changes of platelet function still remain controversial. Currently, it is not clear which anticoagulant regiment is more effective to prevent thrombosis and embolic events after device implantion. This study was to compare the effects of three anticoagulant regiments on coagulant state and platelet function following transcatheter closure of atrial septal defect (ASD).
Methods: A total 138 patients who underwent transcatheter closure of ASD were randomized into three groups to receive different anticoagulant therapy: unfractionated heparin (UFH) for 24 hours, low molecular weight heparin (LMWH) for 24 hours, and LMWH for 72 hours (pLMWH). Aspirin was given to all patients for 6 months after intervention. The laboratory measurements included beta-thromboglobulin (β-TG), platelet factor 4 (PF4) and prothrombin fragment 1+2 (F1+2) which were done before intervention as baseline, immediately after, and day 1, 2, 3, 7, 30 and 90 after intervention.
Results: In 3 groups, β-TG, PF4 and F1+2 elevated immediately after implantation procedure. β-TG and PF4 declined slightly on day 1 and 2, and rose to a highest level on day 3, then fell down to baseline on day 7. The F1+2 gradually returned to baseline on day 90. However, the F1+2 in pLMWH group was markedly lower than that in UFH and LMWH groups on day 3. No thrombo-embolic events were noted during follow-up.
Conclusions: Transcatheter closure of ASD was associated with significant activation of both platelets and coagulation. These findings support an antithrombotic regiment after procedure including anticoagulant and antiplatelet agents. The F1+2 level fell down earlier in pLMWH group. However, there were no differences of clinical outcomes among three groups on day 90 after intervention. Therefore, a larger size and longer follow-up study is needed to further clarify this issue.

GW25-e4431

Pulmonary arterial and bronchial obstruction due to external compression in a patient with chronic mycrobacterium avium infection. Successful therapy with bronchial and pulmonary artery stent implantation

Matthias Peuster MD, PhD[1,2], Fuad Baroody[2], Maria Dowell[2], Micah Bhatti[2], Gerhard Ziemer[1,2]
[1]Jilin Heart Hospital, Changchun, Jilin, PR China, [2]University of Chicago, Chicago, USA

Objectives: We report on a 2 years old patient with immunodeficiency and massive general lymphadenopathy due to chronic mycoplasma avium intercellulare (MAI) infection. Mediastinal lymphadenopathy led to complete obstruction of the left main bronchus and the left pulmonary artery (LPA). Interventional techniques were successfully applied to address bronchial and vascular stenosis before the patient was referred for bone marrow transplantation (BMT).
Methods: After the anatomy was delineated by bronchiography, a pre-mounted Palmaz Genesis biliary stent (PB1570 PSS, diameter 7 mm) was introduced into the proximal left main bronchus over the wire and implanted with 10 atm. Further obstruction of the left bronchus was confirmed by flexible bronchoscopy through the stent lumen, therefore two more stents (PB1560 PSS) were implanted telescopically.
Results: Bronchiography and bronchoscopy confirmed complete restoration of the lumen of the left main bronchus. After the airway was restored, the proximal LPA was stented with a PG1910 XD crimped on a 9 mm OPTA balloon catheter. Complete patency of the proximal LPA was confirmed by angiography. The patient was extubated in the catheterization laboratory and monitored in the ICU for 24 h to exclude reperfusion edema of the left lung. Follow-up x-ray and clinical examination confirmed adequate ventilation of the left lung after stenting. The patient was discharged home 36 hours after the procedure. Antithrombotic therapy was initiated with Aspirin and anti-inflammatory inhalation therapy with budesonide. The patient was then referred for BMT.
Conclusions: Bronchial and pulmonary arterial compression secondary to mediastinal lymphadenopathy can effectively be treated in the catheterization laboratory by endobronchial and endovascular stent implantation.

GW25-e0063

Factors influencing the spontaneous closure of ventricular septal defect in infants

Xu Yang, Sirui Yang
First Affiliated Bethune Hospital, Jilin University

Objectives: Predictors for spontaneous closure of ventricular septal defects (VSD) in infants are still unknown. The current study is designed to prospectively evaluate the potential value of maternal and infantile variables as predictors for the spontaneous VSD closure in infants.
Methods: Consecutive infants, who were less than six-month-old when diagnosed with VSD, were followed-up for at least 5 years. Demographic, clinical and maternal factors were evaluated for the possible associations of incidence of spontaneous VSD closure.
Results: Of the 456 eligible infants, 93 (20.39%) had spontaneous VSD closure, 78.50% of which occurred when the patients were under 3 years of age. Results of logistic analyses suggested that diameter of the defect (DVSD), ratio between diameter of the defect and aortic root diameter (DVSD/DAR), left atrium sizes, left ventricle sizes, main pulmonary forward blood flow, infection scores, shunt ratio (Qp/Qs), VSD locations (perimembranous, muscular, subarterial, or mixed-type), and comorbidities including patent ductus arteriosus (PDA), complex congenital heart