

Congenital Heart Disease and Interventions

GW25-e2158

The changes of plasma miR-18a,miR-27b,miR-130a,miR-204 in patients with pulmonary arterial hypertension due to congenital heart disease

Dai Hailong^{1,2,3}, Yin Xiao-Long¹

¹Yan'an Affiliated Hospital of Kunming Medical University, ²Kunming Medical University, ³Monash University

Objectives: To detect the serum level of miR-18a,miR-27b,miR-130a and miR-204 in patients with pulmonary arterial hypertension due to congenital heart disease, and investigated the correlation of those with pulmonary hypertension.

Methods: 78 patients with congenital heart disease and 20 normal control patients were collected. The patients with congenital heart disease were divided into 37 cases of non-pulmonary arterial hypertension group, 25cases of mild to moderate pulmonary arterial hypertension, and 16 cases of severe pulmonary arterial hypertension. The serum level of miR-18a, miR-27b, miR-130a and miR-204 were detected by using real-time fluorescent quantitative PCR (Taqman probe), and the relationship between serum miRNAs and pulmonary arterial pressure were analyzed.

Results: (1) The expression level of miR-18a, miR-27b and miR-130a in CHD with PAH patients were significantly higher than normal group, the expression level of miR-204 was significantly lower than normal group. (2) The pulmonary arterial pressure was significant positively correlated with miR-18a, miR-27b, miR-130a ($r=0.927$, $r=0.927$, $r=0.933$, $P<0.001$), conversely, there was a negative correlation between pulmonary arterial pressure and miR-204 ($r=-0.773$, $P<0.001$)

Conclusions: The expression levels of miR-18a, miR-27b and miR-130a and miR-204 can be used as the good clinical serological indexes for diagnosis of patients with pulmonary arterial hypertension due to congenital heart disease.

GW25-e0827

The diagnosis value of TTE in aneurysm of sinus of valsalva and its complications

Zhang Minyu^{1,2}, Gao Yu¹, Wang Jianhua¹

¹Diagnostic Ultrasound Division, Beijing Military General Hospital, ²Medical College of PLA

Objectives: Aneurysm of sinus of valsalva is a rare heart disease, and it would be very dangerous if it ruptures to other chambers, so we need to diagnose as early as possible. The object of our study was to investigate the diagnosis value of TTE in aneurysm of sinus of valsalva and its complications.

Methods: 15 cases (11 males, 4 females), aged 23 to 75 years, with aneurysm of sinus of valsalva diagnosed by TTE were retrospectively analyzed, the image features of various pathological type of aneurysm of sinus of valsalva and its complications were summarized and analyzed, while intraoperative findings were compared to.

Results: The mean age of ruptured cases was 32.25 ± 7.85 years ($n=8$), lower than 50.85 ± 19.81 years of the unruptured cases ($n=7$) significantly ($t=2.33$, $P=0.0482$). Compared to surgery, TTE diagnosed ruptured aortic sinus aneurysm, sensitivity, specificity, positive predictive value, negative predictive value, and accuracy were 100% (8/8), 85.7% (6/7), 88.8% (8/9), 100% (6/6) and 93.3% (14/15). Diagnoses aortic sinus aneurysm with ventricular septal defect, sensitivity, specificity, positive predictive value, negative predictive value, and accuracy were 50% (3/6), 100% (9/9), 100% (3/3), 75% (9/12) and 80% (12/15). There were 12 right coronary sinus aneurysms (80%), 3 coronary sinus aneurysms (20%), but no left coronary sinus aneurysm (0%). The pathological classification based on ultrasound images contained four types, apart from one case could not be typed, the proportions of type I, type II, type III, type IV were 26.67% (4/15), 46.67% (7/15), 0% and 20% (3/15). The mean sinus aneurysm base width of 9 cases in surgery was 14.11 ± 5.41 mm, which was significantly associated with the mean width (13.35 ± 5.51 mm) measured by TTE ($r=0.75$, $P=0.019$), and the difference was not statistically significant ($t=0.293$, $P=0.77$).

Conclusions: TTE can accurately diagnose SVA and its complications, we can classify the sinuses by ultrasound images. TTE has an important value for clinical diagnosis and treatment of aortic sinus aneurysm.

GW25-e1599

Transcatheter occlusion of huge coronary artery fistula

Cheng Yingzhang, Wang Gan, Cheng Xiaoshu, Wu Qinghua, Liu Yanna

Department of Ultrasonics, Second Affiliated Hospital of Nanchang University

Objectives: To report experiences of one RCAF transcatheter occlusion.

Methods: A male patient who was aged eight and weighing 23Kg was treated in hospital in august 22, 2013 for discovering heart murmur for eight years and chest

tightness after activity. Admission examination: HR 88bpm, R 18bpm, P 88bpm, BP 110/76mmHg. There was a continuous heart murmur at 3-4 intercostal space of left sternal and Echocardiography showed that Left ventricular significantly expanded, inside diameter of the rest atrial and ventricular were normal, right coronary artery was dilated significantly and its inside diameter was 11mm, the dilated right coronary artery walked tortuously along the back of right atrioventricular to the back mitral valve root and then got into the left ventricular below of the back mitral valve root, the entrance of fistula was 7mm wide, Color Doppler showed a diastolic flow spectrum and its velocity was 318cm/s. This patient was diagnosed with right coronary artery - left ventricular fistula (RCAF) and his cardiac function was grade I.

Results: The patient accepted coronary angiography and transcatheter occlusion treatment in interventional room under general anesthesia in August 26, 2013. We chose the 6F pigtail catheter to get into aortic value through left and right femoral artery and angiography showed that right coronary artery was tortuous and dilated significantly. There was not normal coronary artery in left ventricular, the fistula size was 8.51mm. Made a track (right femoral artery - the right coronary artery - the left ventricle - the aorta - the left femoral artery) and chose the 9F anti-fold catheter through right femoral artery to get into left ventricular. We made a successful occlusion to the entrance of fistula at the point of tortuous position of the right coronary artery using 12mm ventricular septal defect occluder.

Conclusions: RCAF can be cured by interventional occlusion treatment using ventricular septal defect occluder. Full-track technology can improve the success rate.

GW25-e2160

The changes of serum Angiotensin-converting enzyme2 activity in patients with pulmonary arterial hypertension due to congenital heart disease

Dai Hailong^{1,2,3}, Guang Xue-Feng¹

¹Yan'an Affiliated Hospital of Kunming Medical University, ²Kunming Medical University, ³Monash University

Objectives: To observe the changes of serum Angiotensin-converting enzyme2 (ACE2) activity in patients with pulmonary arterial hypertension (PAH) due to congenital heart disease (CHD), and investigate the correlation of ACE2 activity with pulmonary hypertension.

Methods: 68 patients with CHD were involved in this research. The patients with congenital heart disease were divided into 36 cases of non-pulmonary arterial hypertension group, 19cases of mild to moderate pulmonary arterial hypertension, and 13 cases of severe pulmonary arterial hypertension. The serum ACE2 activity were detected by activity colorimetric, and the relationship between serum ACE2 activity and pulmonary arterial pressure were analyzed.

Results: The serum ACE2 activity in CHD with severe PAH patients is significantly lower than normal group (1.28 ± 0.40 vs 1.92 ± 0.64 , $P<0.05$), and the pulmonary arterial pressure was negatively correlated with the ACE2 activity ($r=-0.367$, $P<0.01$).

Conclusions: These results demonstrated that the decreased of ACE2 activity may play an important action in the development of CHD-PAH

GW25-e4367

Oversized atrial septal defect (ASD) occluder and incomplete endothelialization

Zhang Tingting¹, Wan Chen², Cheng Ge-Sheng¹, He Xu-Mei¹, Du Ya-Juan¹, Zhang Yushun¹

¹Second Department Of Cardiology, First Hospital Affiliated to Xi'an Jiaotong University, ²Department of Cardiology, Xi'nan Hospital, Third Military Medical University

Objectives: As transcatheter therapy of atrial septal defect goes to mature gradually these days, people have already change their focus from the hemodynamic after therapy to structural safety and biocompatibility of occluder. We need some experiments to provide factual basis about how to choose occluder in closure surgery of ASD.

Methods: 18 canines were randomly divided into three groups, made atrial septal defect of 6mm diameter for each canine, the operations were guided by transthoracic echocardiography (TTE), then gave different types of occluders to each group (8mm, 10mm and 12mm), routinely gave them anti-infective and anticoagulant therapy after operation. 14 months later, observed the occluder morphological under TTE, then put them to death, observed the endothelial cells through different methods: Observe gross specimen; Statistics the expression of endothelial nitric oxide synthase (eNOS) in newborn endothelial tissues on the surface of occluder by the methods of immunohistochemistry and Western Blot; Observe newborn endothelial tissues by scanning electron microscopy, and transmission electron microscopy. We use SPSS 13.0 statistical software for analysis, all data are expressed as, ANOVA analysis was used to compare data between groups, $P<0.05$ is considered statistically significant.

Results: Operations went on well, 14 months later, we could see the closer between occluder diameter and defect diameter, the more endothelial tissue covered as well as the more they grew regularly, we can see incompletely endothelial in group which used oversized occluders.

Conclusions: During ASD surgery, oversized occluder can lead to incompletely endothelial, so we should choose the occluder whose diameter is close with the defect as much as possible, which will be conducive to endothelial tissue to regenerate.