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序

心房颤动一直是心律失常研究中最薄弱的环节，其机制和治疗学的演变一直存在着困惑和挑战。然而，我们欣喜地看到，近十年来随着对房颤认识的逐步深入及消融、外科等治疗技术的不断成熟，极大推动了房颤的临床研究和学术进展。房颤已成为当今心电生理学领域中的“HOT SPOT”，目前我国已建立起数个房颤研究和治疗中心，心房颤动国际论坛的成长亲历了我国房颤研究、治疗的不断进步和发展，成绩令人鼓舞，正逐渐步入国际先进水平。

本届论坛汇集了国内一年来房颤研究治疗中心和相关学科的最新研究进展，共收录200余篇论文，其数量和质量创历届论坛之最。充分展示了我国房颤研究蓬勃发展和勃勃生机。

心房颤动国际论坛的成长倾注了国内外同道的共同心血，我们完全有理由，经过各位同仁的不断努力和辛勤耕耘，房颤——这片心脏电生理最活跃的沃土，必将结出更加诱人的胜利果实！

2006年7月9日于大连

Clinical Analysis of the Atrial Fibrillation in Elder Patients

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[Abstract]

Objective To analyze the etiology, clinical characteristics of atrial fibrillation (AF) in elder patients.

Methods Retrospective analysis of hospital records was taken from 89 patients (age ≥ 75 year) with AF who were hospitalized from Jan .2003 to Dec.2005.

Results 1) Coronary heart disease, hypertension and senile degenerative heart valvular disease are the main common AF-related diseases. 2) The paroxysmal AF 35 (39.3%), the persistent AF 54 (60.7%). Compared with the paroxysmal AF, the persistent group had a significantly lower left ventricular ejection fraction and a larger left atrial diameter. 3) The most common thromboembolic event is ischemic stroke. Of these patients, only 5.0% were treated with warfarin, 2.2% were treated with clopidogrel, and 80.3% with aspirin. The rages of International Normalized Ratio (INR)were 1.5—2.5 among the patients treated with warfarin. The main dose of aspirin was 75-150 mg/d.

Conclusion In clinical practice, the usage rate of warfarin still remains low. The antithrombotic therapy needs to be sufficiently recognized by patients and physicians so as to improve the compliance of patients.

Increased ostial pulmonary vein diameter in congestive heart failure: a multi-slice computed tomography angiography evaluation

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[Abstract]

Background and Objectives The relationship between left atrial (LA) size and congestive heart failure (CHF) is well recognized; however, there is little information on the association of pulmonary vein (PV) diameter and CHF.The purpose of this study was to investigate the changes of PV and LA sizes in CHF patients by multislice computed tomography (MSCT) angiography using a new 64-slice scanner. **Methods and Results** We assessed diameters of PVs ostium and LA by 64-slices MSCT with three-dimensional reconstruction in 25 CHF patients and in 26 age- and sex-matched non-CHF controls. Significant dilation of left superior pulmonary vein (LSPV) and right inferior pulmonary vein (RIPV) in both anterior-posterior(AP) and superior-inferior(SI) directions ($P<0.01$), dilation of right superior pulmonary vein (RSPV) in AP direction ($P<0.05$), and significant increase of LA transverse, AP, and SI diameters ($P<0.01$) were seen in the CHF group ($P<0.01$). **Conclusion** Significant dilation of PVs with simultaneous LA enlargement was demonstrated in CHF patients. This anatomic and geometric changes may participate in the perpetuation of AF.

[Key words] heart failure; pulmonary vein ostium; computed tomography;

Correlation of High-sensitivity C-reactive Protein and Fibrinogen in Nonvalvular Atrial Fibrillation Patients with Acute Cerebral Infarction

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[Abstract]

Objective To explore the correlation of high-sensitivity C-reactive protein (Hs-CRP) and fibrinogen (Fg) in nonvalvular atrial fibrillation (NVAF) associated with patients with acute cerebral infarction. **Methods:** A total of 129 subjects were divided into 4 groups: AF1:38 NVAF associated with acute cerebral infarction (age 70.9±1.0 years) ;AF2: 34 patients with permanent AF(72.9±11.1 years); AF3: 28 patients with paroxysmal AF (69.7±8.1 years);normal controls(68.7±8.7 years, p all>0.05).Left atrial and left ventricular of end diastolic diameter, Hs-CRP, Fg and CT OR MRI were examined. Results: (1). The left atrium diameter in the three AF groups were 39.9±5.3 mm;41.8±6.3 mm;37.2±4.4 mm respectively, in which all were remarkably larger than control group*31.2±4.3, P all< 0.01).Likewise, the left ventricle diameter in AF1,AF2 and AF3 groups

were 49.6±8.1 mm,52.0±8.5 mm and 50.4±6.3 mm, which were all significantly larger than normal control (43.1±5.9, p all<0.05).(2).The ventricle rate was not significant difference among three AF groups.(3). The AF1 group (16.3±16.4)displayed a significant elevation in plasma Hs-CRP concentration relative to AF2 (8.5±13.6, p<0.05), AF3 (6.6±13.3, P<0.05) and control(3.4±7.2, P <0.01). (4).Plasma concentration of Fg showed significantly higher than normal control(3.3±1.0, p<0.05) and AF2 (3.4±0.9, p<0.05). Multiple regression stepwise analysis revealed that the serum concentration of Hs-CRP was positively correlated with Fg and age, but was negatively correlated with high-density lipoprotein cholesterol ; the serum concentration of Fg was positively correlated with Hs-CRRP and age. **Conclusion** Increased Hs-CRP and Fg are useful biomarkers for NVAF associated with patients with acute cerebral infarction.

[Key words] nonvalvular atrial fibrillation ; C-reactive protein ; fibrinogen ; cerebral infarction

Neovascularization and atherosclerotic plaque stabilization

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[Abstract]

Objective To investigate the influence of paclitaxel on atherosclerotic plaques stabilization, evaluate the relation between neovascularization and plaque stabilization. **Methods** To establish the model of Atherosclerosis ,the rats were randomly divided into 2 groups and treated for 8 weeks as follows: group 1, paclitaxel; group 2,NaCl.Then animals were euthanized, blood sample were obtained for the analysis of serum cholesterol, the aorta were fixed for histology. **Results** The serum cholesterol level were similar in model group (P>0.05),higher than blank comparison(P<0.05); the amount of neovascularization were less in medicine-treated group than model comparison(P<0.05). **Conclusion** paclitaxel can inhibit neovascularization and plaque growth, promote plaque stabilization.

[Key words] paclitaxel plaque stabilization neovascularization

The value of kit of heart-type fatty acid-binding protein for early detection of acute myocardial infarction

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[Abstract]

Objective To evaluate the diagnostic value of kit of heart-type fatty acid-binding protein (H-FABP) for early detection of acute myocardial infarction(AMI) **Methods** H-FABP of serum was tested by H-FABP kit and cardiac troponin I(cTnI) of serum was measured by regular method for 14 patients with chest complaint and ST-segment elevation. The dynamic change of these myocardial indicators for AMI patients , and their diagnostic sensitivity and chronergy in the earlier period of AMI onset were analyzed. **Results** The discharge diagnosis of all patients were AMI. The sensitivity of H-FABP kit and CTnI kit at 1.5~3.0 h and 3.0~6.0h after AMI onset were 100%,100% and 0%,50%, respectively. At 6.0~12.0 h and >12h the sensitivity of H-FABP kit were 91.7% and 37.5%, 100% and 87.5% for CTnI, respectively. **Conclusions** H-FABP kit is more sensitive in the early diagnosis of AMI within 3 hours and at 6 hours after symptom onset.

[Key words] Acute myocardial infarction; Fatty acids; Troponin

Regulation of acidosis on kinetics of cloned cardiac Kv1.4

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[Abstract]

Objective The author discussed mostly the C-type inactivation,that is the channel which was deleted 2-146 amino acids of N-terminus(Kv1.4△N).Materials and methods: Proper volume of cRNA was injected into the oocytes of Xenopus, two electrode voltage clamp technique(TEV) was used to record the current.Results: Compared with the normal,the Kv1.4△N current decreased in the condition of acidosis,the current was activated at-40mv under PH6.8,whereas -30mv under PH7.4.Under PH7.4 the channel can inactivate to 0.384 ± 0.072 at the most, but 0.197 ± 0.013 under PH6.8. Kv1.4△N recovered more slowly in acidosis.Conclusion: In the experiment,the current amplitude decreased,the channel activated more slowly,inactivated more rapidly and recovered more slowly in acidosis.

[Key words] Potassium channels clone oocytes Kv1.4 acidosis

Long term follow of dobutamine stress echocardiography in detecting the change of viable myocardium after coronary revascularization

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[Abstract]

Objective To evaluate the response of left ventricular ejection fraction(LVEF) to different doses dobutamine infusion in parts of coronary artery disease patients,and detetect the changes of viable myocardium afte revascularization. **Methods** Before and 6 months, 3 years after percutaneous transluminal coronary angioplasty (PTCA) or PTCA plus stent.,52 patients with ischaemic cardiomyopathy underwent dobutamine stress echocardiography.The response of LVEF and wall motion during dobutamine stress echocardiography were compared in the patients. **Results** All the patients were divided into group 1,patients with,and group 2,patients without significant improvement in resting LVEF (>=5%).Group 1 and 2 were comparable in baseline characteristics and resting LVEF.After revascularization,the LVEF response during dobutamine stress echocardiography improved significantly and left ventricular wall mation score index decreased significantly in group 1.In group 2 resting LVEF did not improve significantly after revascularization,but stress LVEF improved significantly and left ventricular wall mation score index decreased significantly in 6 months and 3 years. **Conclusion** To assessment the benefit of revascularization in patients with viable myocardium stress LVEF and WMSI are good compensation.

[**Key words**] Dobutamine; Revascularization;Left ventricular ejection fraction(LVEF)

Effects of Angiotensin IV on growth of cultured neonatal rat cardiaccytes

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[Abstract]

AIM To study the effects of Ang IV on growth of cultured neonatal rat cardiocytes. **METHODS** cardiocytes in neonatal SD rat were cultured in vitro and divided into groups: control DMEM, 0^{-6}mol/L Ang IV , 10^{-5}mol/L Ang IV. The effects of Ang IV were assayed as follows: protein synthesis by modified Bradford method, cell cycle by flow cytomery. **RESULTS** AngIV can augment protein synthesis(P<0.05). Moreover, when cardiocytes are incubated in 36h, 48h , AngIV augment protein synthesis more evidently(P<0.01). Ang IV accelerate the change of rat cardiocytes from G_0/G_1 to S phases and increased the numbers of cells of S and G_2/M phases.Besides, 10^{-6}mol/L AngIV accelerate the change of from G_0/G_1 to S phases more evidently. **CONCLUSION** AngIV can directly increase protein synthesis of cardiocyte. And the effect is time-depedent. AngIV can influence growth of cardiocytes and is concentration-depedent.

[KEY WORDS] Angiotensin IV; cardiocytes; cell cycle; flow cytomery

Experience on Endothelial Progenitor Cell Seeding on Stent in Vitro

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Introduction Recently, endothelial progenitor cell (EPC) has been widely concerned in the therapy of postnatal angiogenesis. In this article, we fabricated EPCs seeded stents, and examined the feasibility of if when used in the assumed angioplastic procedure by in vitro experiments.

Cell collection and differentiation BM mononuclear cells, obtained by density gradient centrifugation technique from bone marrow of adult mongrel dogs, and cultured in a type- collagen coated culture dish, added EBM-2 (Clonetics), supplied with 2% fetal bovine plasma and EGM-2 MV BulleKits (Clonetics), containing epidermal growth factor, vascular endothelial growth factor, fibroblast growth factor.

Immunocytochemistry The subculture cells planted for 7~10day, were fixed with cold acetone for 3 minutes at room temperature and stained for EC markers, include von willebrand (vWF) and nitric oxide synthas(NOS). For the test of the acetylated low-density lipoprotein (Dil-ac-LDL; Biomedical Technologies Inc.) uptaken, the cells were watched under the fluorescent microscope (Leica Microsystems) 12 hours after the Dil-ac-LDL was added when cells were inoculated.

Fabrication of self-plasma coated stent In order to improve the adhesion of the seed cells, the plasma was acquired from peripheral blood (10ml) by centrifugation at 1500r for 10 minutes. We put the metal stents in the six-well culture dish, added the plasma (1ml) in it, and then placed the plasma-coated stents into another well. Four hours later the plasma became dry, then after the stent 180°around its longitudinal axis and added the plasma again rotated, made it dry again.

Fabrication of the EC-seeded Stent The plasma self-coated stent was placed into a six-well culture dish, and 1ml of subcultured cell-containing medium (1×10^6 cells/ml) was added in the well. After 1 h of incubation, another cell suspension was added in the same manner after the stent was rotated approximately 180° around its longitudinal axis. The stent was incubated for 7~10 days. The EC-seeded stent surface were watched under the scanning electron microscopy (SEM).

Test for the Practicability of the EC-seeded Stent These stent were loaded on the balloon then through a catheter, expanded by the inflation of the balloon and released in a culture dish, which supplied with culture medium, incubated for 5~7 days, and observed under SEM before and after incubation.

Characters of the Attaching cells from MNCS Some round cells attached within 48 hours, and some of the attaching cells become spindle-shaped. Two week later, the culture was covered by the cobblestone-like monolayered cells. These morphological characters resembled those of endothelial progenitor cells developed from adult human peripheral blood. The immunocytochemistry result shows that these differentiating cells were discovered red fluorescence in the cytoplasm, indicates acLDL can be uptaken and -related antigen is expressed in the cell, and the nitric NOS test shows positive result.

SEM assessment of EC-seeded stent When the stent coated by serum, we can see a complete layer on the strut under the phase-contrast microscopy. The SEM observation shows the cells attached the struts symmetrically and covered it. After the EC-seeded stent passed the catheter and released in the well, some cells denuded, but after 7 days incubation the strut re-endotheliallized by neoformative cells.

The effects of rosiglitazone on the endothelial regeneration and neointimal formation of balloon injured rat aortic

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[Abstract]

Objective To investigate the effects of rosiglitazone on the endothelial regeneration and neointimal formation after balloon injury in rat aortic.

Methods Endothelial denudation of aorta in SD rats were performed with 2F Fogarty balloon catheter. Male Rats were randomly divided into sham-operated group, control group, and RSG group. Drugs were administered by gavage. Aortic tissues were harvested 7 days and 14 days after injury. The endothelial regeneration rate, serum NO level, IA/MA ratio and PCNA expression index were detected.

Results RSG enhanced reendothelialization of the injured aorta as determined by Evans blue stain, the RA/TA ratio on 7th day and 14th day were 38.20% and 75.20%($P<0.05$ and $P<0.01$). Compared with the control group, and the serum NO level on 14th day also increased($P<0.05$). There was a significant decrease of the neointima in RSG groups, the IA/MA ratio decreased by 60.9% on 14th day ($P<0.01$), and the expression indexes of PCNA were greater in RSG group($P<0.01$).

Conclusion RSG can accelerate the endothelial regeneration and attenuate neointimal formation of the aorta after balloon injury.

[**Key words**] rosiglitazone; tunica intima; endothelium

The relation between inflammation and intimal neovascularization in the progress of atheromatous plaque

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[Abstract]

AIM To investigate the role of intimal neovascularization in atheromatous plaque under the control of inflammation. **METHODS** To establish the model of Atherosclerosis, employing asprin to control basic inflammation level. The rats were treated with endostatin and $VEGF_{165}$ separately. 8 weeks later, compared

the serum cholesterol, morphology of aorta and the expression of CD31. **RESULTS** The serum cholesterol level were similar in model group (P>0.05), higher than blank comparison(P<0.05); the amount of intimal neovascularization: group $VEGF_{165}$>group model control group>group aspirin>group endostatin > group blank comparison (P<0.05); the IA/MA ratio was no different in all groups(P<0.05) . **CONCLUSION** when asprin was used to control the inflammation of AS model of rats, the $VEGF_{165}$ and endostatin had no significant effect on the intima.

[Key words] intimal neovascularization; atheromatous plaque; inflammation; angiogenesis inhibitor; angiogenesis accelerator

The research of molecular and ionic mechanisms in vagally mediated atrial fibrillation in canine

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[Abstract]

Background: The reentrant mechanism of vagally mediated AF is not clearly elucidated .

Methods and Results: After vagal stimulation, thirty dogs were divided AF group(AF could be induced) and control group(AF could not be induced). Western-blot and patch clamp were used to determine M_2 receptor and $I_{K,ACh}$ in left atrial appendage (LAA), right atrial appendage (RAA), left atrium(LA), right atrium(RA), pulmonary veins (PVs) and superior vena cava(SVC). In control group, the densities of M_2 receptor and $I_{K,ACh}$ in LAA, RAA and LA were higher than that in RA , PVs and SVC. However, there was no significent difference in LAA, RAA and LA. In AF group, The densities of M_2 receptor and $I_{K,ACh}$ in LAA, RAA and LA were higher than that in RA , PVs and SVC. Furthermore, the densities of the M_2 and $I_{K,ACh}$ in LAA and RAA were higher than that in LA.

Conclusions: Atrial appendage perhaps play an important role in initiation of cholinergic AF. However, PVs and SVC less often play an important role in vagotonic paroxysmal AF.

[Key words]Vagal nerve; $I_{K,ACh}$; M_2 receptor; Atrial fibrillation; Canine

Methods

Experimental Animals

Thirty dogs were intraperitoneally anesthetized with pentobarbital sodium and ventilated with room air. ECG(II,avF) was continuously monitored. At first, the double cervical vagosympathetic trunks were cut. Then Electrical stimulation was delivered. Dogs were as atrial fibrillation(AF) group that AF duration was over 30 seconds, while dogs were as control group that AF duration was less 30 seconds or AF was not induced. After vagal stimulation (VS), the hearts were excise. Then left atrial appendage (LAA), right atrial appendage (RAA), left atrium(LA), right atrium(RA), pulmonary veins (PVs) and superior vena cava(SVC) were dissected. Western-blot and patch clamp were used to determin M_2 receptor and $I_{K,ACh}$.

Statistical Analysis

Values are shown as mean S.E.M. Statistical comparisons were made using ANOVA.. Statistical significance was assumed if P values were less than 0.05.

Results

AF duration was over 30 seconds by VS in eighteen dogs, and AF duration was less 30 seconds or AF was not induced in twelve dogs.

The antibodies against the M_2 receptor identified bands with molecular mass of 83kDa. The band density was determined and the measurement was normalized to GADPH, allowing for a relative quantification of densities of M_2 subtype. The amplitude of $I_{K,ACh}$ was measured at the end of the 2-s voltage steps after the onset of voltage steps. In AF group, The densities of M_2 receptor and $I_{K,ACh}$ in LAA, RAA and LA were higher than that in RA , PVs and SVC(M_2 receptor: 0.66 0.08, 0.67 0.08 and 0.51 0.06 vs 0.35 0.04, 0.33 0.04 and 0.32 0.03; $I_{K,ACh}$: 20.36 0.91, 21.23 0.95 and 14.27 0.62 vs 10.34 0.62, 8.24 0.45, 7.65 0.42 pA/pF. $P<0.05$). Furthermore, the densities of the M_2 and $I_{K,ACh}$ in LAA and RAA were higher than that in LA. In control group, The densities of M_2 receptor and $I_{K,ACh}$ in LAA, RAA and LA were higher than that in RA , PVs and SVC. However, there was no significent difference in LAA, RAA and LA(M_2 receptor: 0.52 0.06, 0.53 0.06 vs 0.50 0.05 ; $I_{K,ACh}$: 16.27 0.87, 16.75 0.82 vs 14.78 0.63pA/pF, $P>0.05$). Compared with the data in control group, The densities of M_2 receptor and $I_{K,ACh}$ in LAA, RAA were higher in AF group. There was no significent difference in LA, RA , PVs and SVC between control group and AF group.

Discussion

Vagal nerve plays an importment role in atrial electrical remodeling and AF[1-2]. Recent studies showed that innervation heterogeneity in atria contributed to the ability of VS in initiation of reentrant atrial tachyarrhythmias by increasing dispersion of refractoriness within atria[3].

In our study, we found that density of M_2 receptor and $I_{K,ACh}$ are significantly higher in RAA and LAA than that in atrium, PVs and SVC. Intrinsic M_2 receptor and I_{KACh} differences between RA and LA are insufficient to explain the mechanism of AF initiation and maintenance, but differences between LAA and LA are an important role in cholinergic AF. Oral et al [4] showed that PV isolation has a lower efficacy in patients with vagotonic paroxysmal AF than in patients with adrenergic or random episodes of paroxysmal AF. Our results may explain why PV isolation is less often effective in eliminating the vagotonic variety of paroxysmal AF than other types of paroxysmal AF.

Takahashi Y et al[5] report a case with paroxysmal AF, in whom multiple foci were identified in the LAA after PV isolation. They showed that the LAA has more dense circumferential connection to the LA compared to the PV, however, the relation between the multiple foci in LAA and vagal nerve is unknown.

[References]

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Modified Method of Chronic Mitral Regurgitation Atrial Fibrillation Model in Canine

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Background: Clinically, chronic mitral regurgitation (MR) is a major risk factor for atrial fibrillation (AF). We introduced a modified method of chronic MR AF model in canine, to study the electrical mechanism of AF.

[Abstract]

Methods: Six dogs were studied. A 7 F myocardial biopsy forcep was introduced into left ventricle via left carotid artery to disrupt the chorda tendineae or the mitral valve leaflets producing moderate mitral regurgitation. All dogs were monitored using echocardiography and ECG recording every 2 weeks. AF induction was performed 3 monthes after creation of MR.

Results: One dog died of heart failure 2 mothes after creation of MR. At follow-up, left atrial diameter was increased greatly from 2.09±0.45 cm to 3.05±0.28 cm ($P<0.05$), no significant differences in left ventricular ejection fraction was noted (pre-MR vs post-MR: 57±6% vs 49±7, P=0.053) in the other 5 dogs. Frequent atrial premature beats were detected in 2 dogs, no spontaneous AF occurred in this study. However, sustained AF (>0.5 hour) were inducible in all post-MR dogs (100%), none in pre-MR dogs (P<0.0001).

Conclusions: This modified method of establishing chronic MR AF model in canine is reliable, reproducible and easy to perform.

[Key words] Atrial fibrillation; Atrial dilation, Method; Canine

Safety and efficacy of catheter ablation of atrial fibrillation in patients with diabetes mellitus

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[Abstract]

Objective: To investigate the safety and efficacy of catheter ablation of atrial fibrillation in patients with diabetes mellitus (DM).

Methods: 31 patients with DM, among 263 consecutive patients underwent first-time catheter ablation of atrial fibrillation were enrolled in this prospective study. The ablation protocol was to complete two continuous circular lesions around the ipsilateral pulmonary veins guided by CARTO system.

Results: Patients with diabetes were associated with older age (62.0±10.8 VS. 56.1±10.6, P=0.004), larger left atrial size (41.1±7.8mm VS. 38.3±5.8mm,P=0.021), higher incidence of hypertension (58.1% VS. 35.8%, P=0.018) and structure heart disease (67.7% VS. 43.5%, P=0.011). There were 28 complications including 4 cardiac tamponade, 3 stroke, 2 pulmonary vein stenosis in the study. The incidence of complications was significantly higher in diabetes patients compared with non-diabetes (29.0% VS. 8.2%, P=0.002). Multivariate analysis showed that DM was an independent risk factor of the occurrence of complications. The odd ratio of DM for the occurrence of complications was 5.936, (95% confidence interval 2.059 to 17.112, P=0.001). Patients with diabetes had similar recurrent rate to patients without DM (32.3% VS. 22.4%, P=0.240). DM was not a predictor of atrial fibrillation recurrence.

Conclusions: Catheter ablation can be applied to atrial fibrillation patients with DM as efficacious as patients without DM. However, there was significant higher incidence of complications in patients with DM.

[Key words] atrial fibrillation, ablation, diabetes mellitus, complication

Strain Rate Imaging for Noninvasive Functional Quantification of the Left Atrium: Comparative Studies in Controls and Hypertensive Patients with Paroxysmal Atrial Fibrillation

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[Abstract]

Objective: This study was conducted to assess the atrial myocardial properties during atrial fibrillation (AF) through myocardial velocity, strain rate, and strain, focusing on the effects of hypertension and atrial arrhythmias, especially paroxysmal AF.

Methods: A total of 110 consecutive hypertensive patients (20 patients with brief atrial tachycardia; 20 with paroxysmal AF) and 32 controls underwent transthoracic echocardiography, tissue velocity imaging (TVI), strain and SR imaging examinations. Atrial tissue velocity, strain, and SR values in hypertensive patients were compared with those of age-matched referents.

Results: Compared with referents, atrial myocardial properties assessed by TVI were significantly increased (P<0.05~0.001) in hypertensive patients with paroxysmal AF. The increase of TASRc (P<0.05) and △ESR (P<0.05), decrease of △ASR (P<0.05) and △ASRc (P<0.001) are significant in hypertensive patients with paroxysmal AF when compared with the control group, moreover, SSR (P<0.05), △ASR (P<0.01), and △TASRc (P<0.001) decrease significantly with △ESR (P<0.01) significantly increased in comparison with hypertensive patients without any arrhythmia. But there are no significant differences in AV, S, △S, TS, △TS, △SSR, ASR, TASR, and △TASR among the four groups.

Conclusions: When paroxysmal AF occurs in hypertensive patients, the efficiency of left atrial myocardia to reserve the potential energy falls whereas the ability remains unchanged, suggesting that left atrial myocardial reservoir function decreases. Meanwhile, the conductivity of left atrium is impaired by paroxysmal AF, which leads to the decrease of the total active atrial contraction and prolonged inter-atrial conduction. Thus, the temporal asynchrony of atria is enhanced, but atrial systole tends to be synchronous. In this setting, we have shown that noninvasive quantification of LA function using SR imaging combined with TVI enables evaluation of LA dysfunction due to hypertension and paroxysmal AF.

[Key words] atrial fibrillation; strain rate; hypertension

Effects of Angiotensin IV on growth of cultured neonatal rat cardiaccytes

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[Abstract]

AIM To study the effects of Ang IV on growth of cultured neonatal rat cardiocytes. **METHODS** cardiocytes in neonatal SD rat were cultured in vitro and divided into groups: control DMEM, 10^{-6}mol/L Ang IV , 10^{-5}mol/L Ang IV. The effects of Ang IV were assayed as follows: protein synthesis by modified Bradford method, cell cycle by flow cytomery. **RESULTS** AngIV can augment protein synthesis(P<0.05). Moreover, when cardiocytes are incubated in 36h, 48h , AngIV augment protein synthesis more evidently(P<0.01). Ang IV accelerate the change of rat cardiocytes from G_0/G_1 to S phases and increased the numbers of cells of S and G_2/M phases.Besides,10^{-6}mol/L AngIV accelerate the change of from G_0/G_1 to S phases more evidently. **CONCLUSION** AngIV can directly increase protein synthesis of cardiocyte. And the effect is time-depedent. AngIV can influence growth of cardiocytes and is concentration-depedent.

[Key words] Angiotensin IV; cardiocytes; cell cycle; flow cytomery

Impact of right upper pulmonary vein isolation on parasympathetic nerve

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[Abstract]

Purpose: Right upper pulmonary vein(RUPV) isolation is essential for atrial fibrillation interventional treatment. Meanwhile, RUPV is very close to the epicardial fat pads thereby the efferent vagal innervation to atrial.This study was to investigate the impact of RUPV isolation on vagal innervation to atrial based on the hypothesis that RUPV isolation could result in the damage of the epicardia fat pad. **Methods:** 6 adult mongrel dogs under general anesthesia were involved in this study. Bilateral cervical sympathovagal trunks were decentralized. Metoprolol was given to block sympathetic effects. Multipolar catheters were placed into right atrial(RA), coronary sinus(CS). RUPV isolation was performed via trans-septal procedure. Atrial effective refractory period(ERP), vulnerability window(VW)of atrial fibrillation, and sinus rhythm cycle length(SCL)