

CI 1.34 to 2.54). These OR were higher in the sub-sample of smokers (3.87 and 2.06, respectively). Binary logistic regression analysis also confirmed that R allele carriers (CT and TT) have a higher risk of CAD (OR=2.07, CI 1.09 to 2.95). MMP-9 R279Q locus did not show significant differences between patients and controls. But QQ genotype and Q allele were significant risk factors in the smoker group. Q allele carriers (RQ and QQ) were also significantly associated with CAD risk in the smoker group (OR=1.43, CI 1.13 to 1.2.26). The R668Q locus did not show significant differences between two groups. And the MMP-9 polymorphism may not be useful as a predictor of the severity of coronary atherosclerosis.

**Conclusions** MMP-9 -1562T allele and TT genotype are significantly associated with CAD patients from the Uighur Population of China (Xinjiang). This association was stronger in smokers, supporting the conclusion that an interaction between MMP-9 activity and smoking augments CAD risk. Further studies with larger sample size are warranted to confirm these associations in different populations.

#### e0126 STUDY ON ANTI-OXIDATIVE FUNCTION OF FOUR KINDS OF SCHIZANDRAE LIGNANS

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**Objective** To study the anti-oxidative function of schisandrin A (SinA), schisandrinB (SinB), schisandrolA (SolA) and schisandrin ester A (SesA).

**Methods** Using the method of the self oxidation method of pyrogallol, Fenton system.

**Results** The results shown that all of four kinds of schizandrae lignans have the inhibition function to Superoxide anion radical ( $O_2^{\cdot-}$ ), SinB had the highest inhibition rate which could arrive at 68.74%; They also had the same inhibition to hydroxyl radical (OH) and SinB have the best effect.

**Conclusions** schisandrin A (SinA), schisandrin B (SinB), schisandrolA (SolA) and schisandrin ester A (SesA) can be used as a natural anti-oxidation for human cardiovascular disease treatment and preventive health care.

#### e0127 DETERMINATION OF PULMONARY ARTERY PRESSURE AND CARDIAC OUTPUT IN RAT

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**Objective** To establish a method for determination of pulmonary artery pressure and cardiac output in rat.

**Methods** 20 Sprgue—Dawely rats were randomly assigned into two groups: control group and pulmonary arterial hypertension (PAH) group. Rats in PAH group were received a single subcutaneous injection of monocrotaline (60 mg/kg). The hand-made PE-50 catheters were inserted into pulmonary artery via right jugular vein, which we can perform mean pulmonary artery pressure. Similarly, cardiac output was detected through thermodilution method.

**Results** After 21 days, compared with control group, mean pulmonary artery pressure was significantly increased ( $17.4 \pm 1.8$  mm Hg in control group vs  $61.8 \pm 4.3$  mm Hg in PAH group, respectively) and cardiac output was significantly decreased ( $130 \pm 5.8$  ml/min in control group vs  $71 \pm 6.7$  ml/min in PAH group, respectively) in PAH group.

**Conclusions** This method is a simple and direct method to detect pulmonary artery pressure and cardiac output in rat.

#### e0128 ANGIOTENSIN-(1-7) INHIBITS VASCULAR REMODELLING IN RAT JUGULAR VEIN GRAFTS VIA REDUCED ERK1/2 AND P38 MAPK ACTIVITY

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**Objects** To evaluate the effects of Ang-(1-7) on vascular remodelling in vein grafts.

**Methods** a model of autologous jugular vein grafts in rats was established. With this model system, rats (n=12 per group) underwent autologous jugular vein graft transplantation (Ang-(1-7) and control groups), or a sham operation (sham group) in which grafting was not performed. Three days after operation, minipumps were installed for continuous infusion of Ang-(1-7) (25 µg/kg/h) or normal saline (control and sham groups) through the jugular vein.

**Results** 4 weeks, weight, blood pressure and heart rate were not significantly different between groups. Typical venous-graft hyperplasia, vascular remodelling, ERK1/2 activity, p38 MAPK activity and proliferating cell nuclear antigen (PCNA) and a-smooth muscle actin (a-SMA) expression present in the control group were attenuated by continuous Ang-(1-7) infusion. Tissue angiotensin II expression was increased in the Ang-(1-7) and control groups but was not different between the groups.

**Conclusion** The results of the present study indicate that exogenous Ang-(1-7) interferes with the vascular remodelling of autologous jugular vein grafts and significantly inhibits vein-graft intimal hyperplasia via inhibition of vascular tissue ERK1/2 and p38 MAPK activation. Thus, exogenous Ang-(1-7) improves the outcome of vein grafting via attenuation of vascular remodelling.

#### e0129 EFFECT OF TETRANDRINE ON ANOXIA/REOXYGENATION-INDUCED RELEASE OF PROINFLAMMATORY FACTORS IN CULTURED CARDIOCYTE OF NEONATE RATS

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**Objective** To investigate the effect of tetrandrine on anoxia/reoxygenation-induced the release of myocardial enzyme LDH, CK and proinflammatory factors: TNF- $\alpha$ , IL-1 $\beta$ , IL-6 in cultured cardiocytes of neonate rats.

**Methods** After cardiocytes were cultured in vitro successfully, it were divided into four group: control group (CON), anoxia/reoxygenation group (A/R), tetrandrine group (Tet), simvastatin (Sim) in random. Each group was treated as follow: CON group - not treated anoxia/reoxygenation, continuous incubated 26 h under normal circumstance. A/R group- first anoxia incubate carried, cells were incubated on the non- saccharide non- serum culture medium, which saturate by 95% argon gases 2 h, reoxygenation incubate followed, cells were incubated in normal circumstance 24 h. 0.9% saline were added into culture fluid before the beginning of reoxygenation. Tet group and Sim group—the procedure of anoxia/reoxygenation was same to A/R group, the difference of these two groups was they added Tet (30 µmol/l) or Sim (10 µmol/l) respectively into culture fluid and incubated 60 min before anoxia beginning. LDH, CK, TNF- $\alpha$ , IL-1 $\beta$ , IL-6 were detected after reoxygenation 24 h.

**Result** The LDH and CK were increased significantly in A/R, Tet, and Sim groups compared with CON group ( $p < 0.01$ ). The LDH and CK in Tet and Sim group were lower significant than A/R group ( $p < 0.01$ ). 2. The proinflammatory factors TNF- $\alpha$ , IL-1 $\beta$  and IL-6 were increased significantly in A/R, Tet, and Sim groups compared with CON group ( $p < 0.01$ ). And it were lower significant than A/R

group ( $p < 0.01$ ). 3. The level of LDH, CK, TNF- $\alpha$ , IL-1 $\beta$ , IL-6 were no significant difference between Tet group and Sim group ( $p > 0.05$ ).

**Conclusion** Tet can attenuate myocardial ischaemia/reperfusion injury. It achieves this pharmacologic action through inhibition the I $\kappa$ B- $\alpha$  phosphorylation and reduces the harmful cytokine TNF- $\alpha$  and IL-6.

**e0130 TETRANDRINE CONTROL PRO-INFLAMMATORY FACTOR TO REDUCE RAT MYOCARDIAL ISCHAEMIC/REPERFUSION INJURY**

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**Objective** To investigate how tetrandrine through regulate the pro-inflammation factors TNF- $\alpha$ , IL-1 $\beta$ , IL-6 to attenuate rat ischaemic/reperfusion injury.

**Methods** Sprague-Dawley (SD) rats were randomly divided into four group: Sham, ischaemia/reperfusion (I/R), Tetrandrine (Tet) and simvastatin group (Sim). The SD rat underwent 30 min of left anterior descending (LAD) coronary occlusion and 24 h reperfusion to make ischaemia/reperfusion (I/R) injury model in vivo. Sham group were not subjected to occlusion of artery. Tet group were injected tetrandrine to abdominal cavity 20 min before ischaemia starting. The rat in Sim group was administrated simvastatin 2 mg/kg/1 intragastrically every day, administrating drugs lasted 14 days. The other procedures were same to the I/R group. Samples were collected after 24 h reperfusion. The expression level of TNF- $\alpha$ , IL-1 $\beta$ , IL-6 protein in serum and myocardial tissue was detected by ELISA. LDH and CK were detected too. The neutrophil infiltration degree in myocardium was determined by using measuring the activity of myeloperoxidase (MPO) method. Cardiac function which includes FS%, EF and E/A was measured by using ultrasound. EB/TTC (Azovan Blue/2, 3, 5-Triphenyl-2H-Tetrazolium Chloride) dyeing method was used to measure the infarction size.

**Result** 1. The LDH and CK were significantly higher in I/R, Tet and Sim groups compared with Sham group ( $p < 0.01$ ), but it were much lower in Tet and Sim groups compared with I/R group. 2. The cardiac function of systolic and dilator in experimental group was decreased significantly compared with normal heart's function. In Tet and Sim group, which was experienced pharmacological preconditioning their cardiac function were significant higher than I/R group ( $p < 0.01$ ), but no significant difference between Tet and Sim on EF and E/A. 3. The activity of MPO was significantly increased after reperfusion, its activity in experimental groups were much higher than Sham group ( $p < 0.01$ ), notwithstanding its activity in Tet and Sim groups were significantly lower than I/R group ( $p < 0.01$ ). No significant difference was found between Tet and Sim group. 4. In Tet and Sim group the expression of proinflammatory factors (TNF- $\alpha$ , IL-1 $\beta$ , IL-6) were significant lower compared with I/R group ( $p < 0.01$ ) and significant higher than shame group ( $p < 0.01$ ). **Conclusion** Tet can attenuates myocardial ischaemia/reperfusion injury. It achieves this pharmacologic action through reduce the harmful cytokine TNF- $\alpha$  and IL-6, IL-1 $\beta$ .

**e0131 THE ANTI-APOPTOTIC EFFECT OF INSULIN ON CARDIOCYTE IN DIABETIC RATS**

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**Objective** To observe the diverse apoptosis of the myocardial mitochondria on insulin therapy in diabetic rats and to investigate

the anti-apoptotic mechanism of insulin interacting with the mitochondria.

**Methods** Male wistar rats were administered with intraperitoneal injection of streptozotocin (STZ, 25 mg/kg) and high fat diet to induce type 2 diabetic mellitus. Twenty-two were randomly divided into two treatment groups, namely, the early treatment group and the late treatment group (each  $n = 7$ ), and one diabetic (DM) group ( $n = 8$ ). Another eight were chosen for control. Novolin 30R was administrated hypodermically to the early treatment group (IE group) at the first week and to the late treatment group (IL group) at the fourth week. DM group were injected subcutaneously with physiological saline. All groups were treated for 8 weeks. At the end of the experiment we compared SOD, MDA, GSH in different groups, as well as apoptotic index, mitochondrial membrane potential ( $\Delta\Psi_m$ ), active oxygen and myocardial ultrastructure.

**Results** Compared to the control group, DM rats had higher blood glucose ( $30.53 \pm 2.39$  vs  $7.48 \pm 1.03$ ,  $p < 0.01$ ), HW/BW ( $2.88 \pm 0.01$  vs  $2.56 \pm 0.03$ ,  $p < 0.05$ ), MDA ( $6.46 \pm 0.99$  vs  $4.98 \pm 0.30$ ,  $p < 0.01$ ), apoptotic index ( $0.934 \pm 0.032$  vs  $0.063 \pm 0.011$ ,  $p < 0.01$ ), and active oxygen, but lower SOD ( $222.06 \pm 12.94$  vs  $245.99 \pm 8.67$ ,  $p < 0.01$ ), GSH ( $6.99 \pm 1.50$  vs  $9.71 \pm 0.67$ ,  $p < 0.01$ ) and  $\Delta\Psi_m$  ( $0.243 \pm 0.087$  vs  $0.900 \pm 0.075$ ,  $p < 0.01$ ). The mitochondrial crista of DM rats break, dissolved and became vacuolous. Compared to the DM group, The level of MDA ( $5.31 \pm 0.60$  vs  $6.46 \pm 0.99$ ,  $p < 0.01$ ) and apoptotic index ( $0.48 \pm 0.07$  vs  $0.93 \pm 0.03$ ,  $p < 0.01$ ) were significantly lower and the level of  $\Delta\Psi_m$  ( $0.63 \pm 0.09$  vs  $0.24 \pm 0.09$ ,  $p < 0.01$ ) was increased in the IE group. The IE group showed remarkable improvement in contrast to the IL group which improved a little (MDA ( $5.31 \pm 0.60$  vs  $6.27 \pm 0.75$ ,  $p < 0.01$ ), apoptotic index ( $0.48 \pm 0.07$  vs  $0.90 \pm 0.03$ ,  $p < 0.01$ ),  $\Delta\Psi_m$  ( $0.63 \pm 0.09$  vs  $0.35 \pm 0.04$ ,  $p < 0.01$ ).

**Conclusion** Insulin has an anti-apoptotic effect on cardiocytes of diabetic rats, and earlier intervention is better than later.

**e0132 MYOCARDIAL CAPILLARY PERICYTES IN RESPONSE TO HYPERTENSION WITH DIABETES**

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**Introduction** Pericytes are perivascular cells with multifunctional activities which are now being elucidated. Pericyte alteration or degeneration is linked directly with microangiopathy in diabetes, scleroderma and hypertension.

**Aims** The purpose of the present study is to investigate the pathologic changes of the myocardial capillary pericytes in hypertension with diabetes rats.

**Methods** The rat model of hypertensive with diabetes mellitus (SHDM) and the rat model of diabetes mellitus (DM) were induced by an intraperitoneal injection of streptozotocin combined with high fat diet in spontaneously hypertensive rats (SHR) and SD rats, respectively. The four groups were as follows: SD, DM, SHR and SHDM. The ultrastructure changes were examined by transmission electron microscope and the number of pericyte was assessed by immunohistochemistry of ventricular sections at 16 weeks.

**Results** Ultramicroscopic analysis of capillaries showed the pericytes on myocardial capillaries of SHR, DM, and SHDM were conspicuously abnormal in shape and were with cytoplasm containing abundant myofilament and organelle. In addition, pericytes seemed to be loosely associated with the endothelium. The number of pericytes in SHR, DM and SHDM were significantly increased than that in SD. The number of pericytes in SHDM were much higher than that in SHR ( $11.8 \pm 3.6$  vs  $3.9 \pm 1.1$ ,  $p < 0.01$ ), but no significantly difference than that in DM ( $11.8 \pm 3.6$  vs  $10.2 \pm 3.3$ ,  $p > 0.05$ ).