of Luofengning-0 complexes on the growth of human coronary artery smooth muscle cells(HCASMC) and endothelial cells(HCAEC) cultivated in vitro.

METHODS The 3-5 generation of HCASMC and HCAEC were respectively seeded onto 96-well plates, then co-incubated with different concentration of hirudin (6.25,3.13,1.56,0.78,0.39,0.2,0.1,0.05,0.025 mg/mL), methylthiazoletetrazolium (MTT) assay for cell viability, and then determined the optimal concentration range of hirudin to inhibit the growth of HCASMC, while promote the growth of HCAEC. On this basis, choosing 1umol/L paclitaxel complexes with the optimal concentration range of hirudin as different ratio of Luofengning-0 complexes. Co-incubated with different ratio of Luofengning-0 complexes in 96-well culture plate, every doses were added into 6 wells. The first 5 wells added culture medium for blank contrast group and the remaining 1 well for zero-adjustment, the second 6 wells only added single paclitaxel. After co-incubated 48 hours, detected the change of cells growth activity by MTT assay and observed the state of cells, then determined the appropriate ratio of paclitaxel and hirudin to maximize the inhibition of HCASMC and minimum the inhibition of HCAEC.

RESULTS Medium dose of hirudin (0.2-3.13mg/mL) could obviously inhibited the growth of HCASMC($P<0.05$) while not apparently inhibit the growth of HCAEC($P>0.05$) compared to the blank contrast group. This range of hirudin compleesx with 1umol/L paclitaxel(Luofengning-0 complexes) could obviously inhibited the growth of HCASMC($P<0.05$). Besides, low dose of LFN-0 complexes 1umol/L paclitaxel+0.39mg/mL hirudin) group were apparently increase the growth of HCAEC($P<0.05$), and decrease the inhibition ratio of the growth of HCAEC compared with single paclitaxel group($P<0.05$).

CONCLUSIONS For low dose of LFN-0 complexes can maximize the inhibition of HCASMC and minimum the inhibition of HCAEC, we choose 1umol/L paclitaxel matches 0.39mg/mL hirudin as our final ratio of LFN-0 complexes. All these proved the rationality of TCM compatibility to reduce the poison theory and provided an objective basis for the new theory of "endogenous collateral wind".

GW26-e1239

Ethanol promoted the development of atherogenic-diet-induced atherosclerosis in murine abdominal aortas

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OBJECTIVES The mechanism through which alcohol promotes the development of atherosclerosis remains elusive. The first detectable stages of atherosclerosis is the thickening of the arterial wall, which can be noninvasively evaluated by measuring intima media thickness (IMT) using the Ultrasound. Monocyte chemotactic protein-1 (MCP-1) plays an important role in the recruitment and activation of monocytes and thus in the development of atherosclerosis. The aim of this study was to evaluate the effects of chronic high ethanol consumption (EtOH) and/or atherogenic diet (AD) on the development of atherosclerosis via up-regulating MCP-1 in murine abdominal aorta (AAo).

METHODS C57BL/6j male mice (13 weeks of age) were fed by control diet (CD), AD, and AD + 10 g/dL ethanol (AD + EtOH) for 16 weeks. AAo IMT, the gene expression of MCP-1 in the murine abdominal aorta, and total cholesterol level in blood were assessed.

RESULTS Sixteen weeks AD treatment increased the AAo IMT and the total blood cholesterol level. While, 16 weeks AD + EtOH treatment deteriorated the increases in AAo IMT and blood total cholesterol level accompanied the up-regulation of the MCP-1 gene expressions, which were not shown in the AD group mice.

CONCLUSIONS Chronic high ethanol consumption may promote the development of the AD-induced atherosclerosis via up-regulated MCP-1.

GW26-e2434

Protection of XUEBIJING in CLP-induced Pulmonary Function Injury in rats by Inactivation of NF-κB

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OBJECTIVES We aimed to investigate the effect of XUEBIJING on lung function and to search for possible mechanism in septic rats.

METHODS Fifty male Sprague-Dawley(SD) rats were randomized into Sham-operation group (Sham group, n=10), saline group (NS group, n=20) and XUEBIJING group (XBJ group, n=20). Polymicrobial sepsis model was induced by cecal ligation and puncture (CLP) in NS and XBJ group. Rats in NS group were injected with saline (10ml/Kg) 2h after CLP and then twice a day for 7 days. Rats in XBJ group were injected XBJ (4mL/Kg) instead of saline at the same time points. Dead time of rats was recorded every day and lung function was tested by Buxco pulmonary analysis computer/software. Weight changes, acute pulmonary edema (lung wet-to-dry ratio) and lung histopathology were measured to evaluate their efficacy. Serum levels of TNF-a, IL-6 and IL-1β were measured by ELISA. Meanwhile, the mRNA expression of IKKα and NF-κB p65 were measured by RT-PCR. The protein expression of IKKα, phospho-IKKα, NF-κB p65 and phospho-NF-κB p65 were measured by western blot.

RESULTS On day 7 after CLP, 4 out of 20 XBJ treated rats survived, but all rats in NS group died. Compared with the NS group, XBJ group could obviously increase Dynamic lung compliance (Cdyn) and decrease pulmonary resistance (RI) ($P<0.05$). The acute lung edema calculated by wet-to-dry ratio was eased compared with that in model group ($P<0.05$). Correspondingly, the expression of TNF-α, IL-6 and IL-1β in lung in XBJ treated rats were obviously decreased ($P<0.05$). Also, histomorphology indicated that XBJ significantly reduced the pathological injuries of lung ($P<0.05$). Compared with CLP group, XBJ reduced expression of IKKα and NF-κB p65 mRNA ($P<0.05$). Moreover, the protein expression of IKKα, phospho-IKKα, NF-κB p65 and phospho-NF-κB p65 in XBJ treated rats was obviously decreased ($P<0.05$).

CONCLUSIONS XBJ could effectively extend the survival time, significantly assuage the lung function and decrease the expression of inflammation related protein in septic rats induced by CLP. The protection of XBJ was induces more likely by means of IKKα and NF-κB p65 inhibition.

GW26-e2938

Research on pharmacological mechanisms of Qishen Granule using Methodology 1H-NMR Metabolomics in mini pigs with cardiac functional insufficiency and qi-deficiency and blood stasis syndrome(QDBS) induced by Ameroid constricting ring

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OBJECTIVES To explore the pharmacological mechanisms of Qishen Granule, a compound Chinese herbal medicine, using methodology 1H-NMR metabolomics in a mini pig model of cardiac functional insufficiency and qi-deficiency and blood stasis syndrome(QDBS) induced by Ameroid constricting ring. Moreover, drug targets and effect mechanisms pathways which may exist were also studied.

METHODS Establishment and assessment of a qi-deficiency and blood stasis syndrome model with cardiac functional insufficiency experimental mini pigs (20±5 kg) were instrumented with a size-matched Ameroid constrictor on the anterior descending branch under general anesthesia in sterile conditions. Sham group didn't place the Ameroid constrictor, the other were the same to the model group. And the experimental mini pigs of animal models were randomly divided into model group and Qishen granule group with 6 in each group, sham operation group with 6 at the end of experiment. 3 weeks after the operations, the animals were assessed with echocardiography and electrocardiogram test. The day after the 3 weeks assessment, the animals in different groups received different treatments. The therapeutic drugs stirred well respectively with their normal feed then delivered for 8 weeks. The small molecule metabolites were comprehensively identified and comparatively analyzed from the endogenous serum samples of the three groups (the model group, sham operation group, Qishen granule high dose group) using ^{1}H-NMR metabolomics after 8 weeks administration.

RESULTS Model group, treatment group and sham group using ^{1}H-NMR metabolomics found total 25 differences metabolism material, including histidine, acetoacetate, acetate, ethanol, valine, aspartate, glycoproteins, proline, citrate, urea, hippurate, leucine, lysine, creatinine, myo-inositol, succinate, glycerol, dimethylglycine, dimethylamine, methionine, choline, phenylalanine, b-Hydroxybutyrate, b-Glucose, 1-Methylhistidine. After 8 weeks administration, compared

with the sham-operated group, glycoprotein, creatinine, dimethyl glycine, beta-hydroxybutyrate were increased significantly in model group; acetoacetic acid, acetic acid, valine, proline, urea, dimethylamine were reduced. 8 weeks after adminstration, compared with the model group, acetoacetic acid, proline, urea, acetic acid, ethanol, 1-Methylhistidine were significantly increased, dimethyl glycine was significantly reduced.

CONCLUSIONS ^{1}H-NMR metabolomics results suggested Qishen Granule treatment of cardiac functional insufficiency and qi-deficiency and blood stasis syndrome (QDBS) mini pigs main differenced metabolites were concentrated on the major metabolite of amino acid metabolism, glucose metabolism and energy metabolism. That is some certain contribution in pharmacological mechanism for clinical treatment to find new drugs target.

GW26-e2943

Effect of high extracellular calcium on left ventricular monophasic action potentials in Kunming mice

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OBJECTIVES That the calcium ions across the membrane is an important part of the formation of action potential in myocardial cells, and the purpose of this experiment is to observe the effect of high calcium on the left ventricular monophasic action potential(MAP) in open chest model of Kunming mice.

METHODS 10 Kunming mice (9 weeks old, 5 males and 5 females) were suffered thoracic-opening operation, and the epicardial MAP was recorded by using a contact-type MAP electrode placed vertically on the left ventricular epicardium surface. The Tyrode's solution with high concentration of calcium ions was adding to resulting high extracellular calcium, and then extracellular calcium was removed by adding Tyrode's solution free of calcium. Under the three conditions the amplitude of MAP(Am), the maximum upstroke velocity(Vmax), as well as APDs at different repolarization levels(APD30, APD50, APD70, and APD90) of MAP were determined, and these parameters for interpretation of the effect of extracellular calcium on left ventricular monophasic actin potential were analyzed in detail.

RESULTS (1) Depolarization of MAP The maximum amplitude of depolarization(Amax) of the MAP was an average of 8.14+2.448mV, the maximum rate of depolarization(Vmax) was an average of 1.70+0.346V/s, and the time of peak depolarization(T) was an average of 18.00+4.422ms. After adding high calcium Tyrode's solution, the Amax(4.99+1.171mV) and the Vmax (1.14+0.388V/s) were significantly lowered(q value were 4.433 and 4.171, $P<0.01$), but the depolarization peak time are different, of which 4 cases prolonged, with an average of 22.75+5.965ms,1 cases had no change and 5 cases shortened, with an average of 14.80+3.033ms.

(2) Repolarization of MAP The action potential duration(APD) was 86.10+7.015ms, 80.67+7.036ms and 87.80+7.300ms in the three conditions of the basic, high calcium and the free of calcium respectively, and there were no significant difference between the three cases($F=2.514$, $p>0.05$). Despite the variation existed in every repolarization were phase, namely APD30, APD50, APD70 and APD90, after the addition and removal of high calcium solution, but there no significant different between the three cases(F values were 2.316, 1.641, 1.529 and 2.071respectively, $p>0.05$).

CONCLUSIONS High extracellular calcium may decrease depolarization velocity and amplification of left ventricular MAP by inhibiting the inward sodium current.

GW26-e3523

miR-31a-5p controls cardiomyocyte proliferation in postnatal hearts

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OBJECTIVES MicroRNAs (miRNAs, miRs) are a class of endogenous non-coding RNAs, participating in a variety of essential biological processes including development, differentiation, proliferation and apoptosis. Rodents have the capacity to regenerate their hearts in response to injury while the capacity would be lost 7 day after birth, suggesting that mammals gradually lose their regenerative potential during postnatal development. The roles of miRNAs in regulating cardiomyocyte proliferation in postnatal hearts are largely unclear.

METHODS Cardiomyocytes were isolated from rat at day 0 and day 10. Agilent rat miRNA arrays were performed to determine the dysregulated miRNAs in cardiomyocytes between day 0 and day 10. A total of 32 miRNAs were found to be dysregulated between day 0 and day 10 (Fold change over 2 and P values less than 0.05).

RESULTS As determined by quantitative reverse transcription polymerase chain reactions and functional assays using EdU staining and Ki-67 staining, miR-31a-5p was found to be able to promote neonatal cardiomyocyte proliferation. Moreover, the expression of proliferation maker- Proliferating Cell Nuclear Antigen (PCNA) was also increased in cardiomyocytes transfected with miR-31a-5p mimics as determined by PCRs and Western blotting analysis. Tumor suppressor RhoBTB1 was found to be negatively regulated by miR-31a-5p in cardiomyocytes and also was responsible for the pro-proliferation effects of miR-31a-5p in neonatal cardiomyocytes.

CONCLUSIONS These studies demonstrate that miR-31a-5p controls cardiomyocyte proliferation in postnatal hearts by targeting RhoBTB1. miR-31a-5p represents a therapeutic target for cardiac repair and regeneration.

GW26-e3945

The Hemodynamics changes in different time after exhausted exercise in rats

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OBJECTIVES To evaluate the hemodynamic changes on the exercise-induced minor myocardial injury in different time after exhausted exercise in rats.

METHODS 30 male SD rats were randomly divided into 5 groups (n=6): control group (Con), exhaustive exercise group (EE), 6h,12h,24h recovery from exhaustive swimming group (EER6 EER12 EER24). The animal models of exercise-induced myocardial injury were established according to Thomas' method. Rats were forced to swim until they were exhausted. Hemodynamics was recorded and analyzed with Millar pressure- volume system in rats.

RESULTS The heart rate (HR), left ventricular end systolic pressure (Pes), left ventricular developed pressure, arterial elasticity (Ea), the maximum rate of left ventricular pressure rise (dP/dt_{max}), peak rate of left ventricular pressure decline ($-dP/dt_{min}$), left ventricular end diastolic pressure volume relationship curve slope (ESPVR) in the EE group decreased the lowest in all, which had significant difference compared with the Con group, while Left ventricular end diastolic volume (Ved), Pes, left ventricular end systolic volume (Ves), stroke volume, and Tau value increased. Besides, Cardiac output, HR, ejection fraction, end diastolic pressure volume relationship curve slope of each group had no statistical significance ($P>0.05$). HR, Pes, dP/dt_{max}, $-dP/dt_{min}$ in recovery groups (EER6, EER12, EER24) were different to EE group, but had no difference compared with the Con group. Ves, Ved and ESPVR had significant difference with the Con group, but no difference compared with the EE group. The Ped of EER24 decreased significantly compared with EE group. The Pdev of EER12, EER24 group compared with the EE group increased significantly. Ea in EER6 group was lower than that of the control group, but EER12, EER24 had no difference with control group and were significantly lower than the EE. Tau value of three recovery groups had significant differences with EE and Con groups.

CONCLUSIONS Exhausted exercise causes that ventricular volume expansion, cardiac systolic and diastolic function were impaired, particularly diastolic dysfunction of rats' heart, however, with the exhausted recovery time prolonged, the function can be recovered partly.

GW26-e4522

Correlation polymorphism of GDF-15 gene with the Coronary Heart Disease formation of collateral circulation

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OBJECTIVES To explore the correlation polymorphism of -3148C/G site of GDF15 (Growth differentiation factor - 15) gene with the