formation of collateral circulation of Coronary Heart Disease in Han people of Taiyuan area.

METHODS The polymerase chain reaction (PCR) gene sequencing and sequence flanking were used to detect and analyze the polymorphism of -3148C/G site of GDF15 gene for 92 ST-elevation myocardial infarction (STEMI) patients with 68 collateral circulation group, 24 non-collateral circulation group and 56 Patients with normal coronary angiography in a control group.

RESULTS The genotype frequencies of CC, GC were 80.43% and 19.57% in the AMI group, which were 60.71% and 39.29% in the control group respectively. P values of the two groups at -3148C/G CC, GC genotype frequencies distribution is <0.009. The risk genotype GC, OR = 2.660, 95% of confidence interval is 1.265 - 5.595. And the genotype frequencies of CC, GC were 85.29% and 14.71% in the AMI collateral circulation group and 66.67% and 33.33% in the AMI non-collateral circulation group individually, P values of two groups at -3148C/G CC, GC genotype frequencies distribution is <0.05. The risk genotype was GC, OR = 2.900, 95% of confidence interval is 0.983-8.526.

CONCLUSIONS There is a correlation the polymorphism of - 3148C/G site in GDF15 gene and the Coronary Heart Disease patients with collateral circulation in Ham people of Taiyuan area.

GW26-e4625 Inhibitions of Wenxin Keli on ventricular arrhythmias with various underlying mechanisms
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OBJECTIVES The antiarrhythmic effects of Wenxin Keli, the first state-sanctioned traditional Chinese medicine to treat cardiac arrhythmias, has been attributed to the inhibition of late sodium current (E-4031), increased intracellular calcium concentration (Bay K 8644) and inhibition of potassium current (E-4031).

METHODS Female rabbit isolated hearts were perfused in Langendorff mode and paced at a rate of 1 Hz after thermo-ablation of AV nodal area. Endo- and epicardial monophasic action potential duration (MAPD) and 12-lead electrocardiogram were recorded and ventricular arrhythmias were analyzed.

RESULTS Wenxin Keli, at a concentration range of 0.1-5 mg/ml, did not alter the epi- and endocardial MAPD90 (P > 0.05). Bay K 8644 (300 nmol/L), ATX-II (3 nmol/L) and E-4031 (80 nmol/L) prolonged endocardial MAPD90 from 193±17, 199±6, 188±7 ms to 266±13 (n = 5, P < 0.01), 354±18 (n = 7, P < 0.01) and 306±22 ms (n = 6, P < 0.01), respectively. In the presence of either Bay K 8644 (300 nmol/L) or ATX-II (3 nmol/L) or E-4031 (80 nmol/L) prolonged intracellular calcium concentration (Bay K 8644) and inhibition of potassium current (E-4031).

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CONCLUSIONS Wenxin Keli decreases the ventricular repolarization abnormalities and is effective to be antiarrhythmic. The efficacy of Wenxin Keli is greater in cardiac arrhythmias associated with increased intracellular calcium concentration associated with that with decreased potassium current.
exposure to high glucose, as evidenced by decreases in the expression of Runx2, activity of ALP(alkaline phosphatase) as well as calcium nodules.

CONCLUSIONS These results suggest that high glucose induces the ER stress response and apoptosis, leading to high-glucose-elevated vascular calcification.

GW26-e5405
Establishment of Swine End-Stage Dilated Cardiomyopathy Model by Percutaneous Venous Intervention
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OBJECTIVES To established a model of swine end-stage dilated cardiomyopathy (DCM) model by percutaneous venous intervention.

METHODS Ten male pigs were randomly divided into 2 groups, namely DCM group and control group. The DCM group underwent rapid right ventricular pacing by a modified Medtronic unipolar pacemaker connected to an apical pacing lead via percutaneous venous intervention, which at the rate of 230 beats per minute for 4 weeks, and 190 beats per minute for another 4 weeks, while the control group received sham operation. The clinical symptoms and hemodynamic parameters were used to evaluate the severity of heart failure.

RESULTS Cardiac output in the DCM group (3.1 +/- 1.1 L.min-1) was significantly less (P less than 0.01) than in control group (5.4 +/- 0.8 L.min-1). Compared with control group (0.57 +/- 0.19 cm), thickness of left ventricular posterior wall was significantly less (P less than 0.01) than in control group (0.51 +/- 0.18 cm).

CONCLUSIONS We established a model of swine end-stage dilated cardiomyopathy model by percutaneous venous intervention, which demonstrates that 4 weeks of rapid ventricular pacing at 230 beats/ min and another 4 weeks of 190 beats per minute produces a realistic model of end-stage dilated cardiomyopathy in the pig.

GW26-e1009
Protective effect of astaxanthin on contrast-induced acute kidney injury in experimental rats
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OBJECTIVES To explore the protective effect and mechanism of astaxanthin(UST) on the acute kidney injury induced by iohexol in rats.

METHODS Thirty rats were randomly divided into five groups: control group (CON), iohexol group (CM), astaxanthin group AST, 100mg/kg, low astaxanthin dose group (LAST, 50mg/kg) and high astaxanthin dose group (HAST, 100mg/kg). The rats in AST, LAST, CM groups were administrated with AST by oral gavage using an intubation needle for 10 consecutive days. The other rats in CON, CM groups were given with iohexol instead in equal volume. Except for the CON and AST groups, on day 8, rats were given indomethacin, L-NAME and iohexol in their femoral vein under chloral hydrate anesthesia to build a contrast-induced-nephropathy (CIN) model. At the end of the experiment (72h after CIN induction), all rats were sacrificed. The serum creatinine (SCR) level, blood urea nitrogen (BUN) level, renal histology, renal tissue activities in superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (Gpx), Glutathione (GSH) and level of malondialdehyde (MDA) were performed. Apoptosis of renal cells was detected by Bcl-2, Bax and Caspase 3 with Western blot.

RESULTS ① Compared with CON group, renal function of SCR, BUN levels were significantly increased in CM group (P < 0.01), while compared with CM group, the indicators were decreased in treatment groups (P < 0.01); Renal tubular structure damage, medulla congestion, loss of brush border, vacular degeneration, apoptosis and proteinaceous casts were observed the CM group, and the renal injury scores were higher compared with CON group (P < 0.05), however, administrated with AST could significantly improve the changes (P < 0.01). ② Oxidative stress indicators that MDA level were increased while SOD, Gpx, GSH activities were significantly decreased at CM group (all P < 0.05), and the indicators above were ameliorated in treatment groups (P < 0.05). ③ Western blot showed that the expression of Bcl-2 was down-regulated while the Bax, caspase 3 p17 was up-regulated respectively at CM group (P < 0.05), while the HAST-CM group could prevent the changes.

CONCLUSIONS Iohexol can result in oxidative stress increased in kidney, which activate caspase-3 p17 signal path, down-regulated Bcl-2 expression, up-regulated Bax expression respectively, and lead to cell apoptosis. AST can ameliorate the changes, especially with high AST dose, which suggest that the possible protection mechanism is by ameliorating oxidative stress and inhibiting apoptosis pathways.

GW26-e1242
Sodium tanshinone-I-A sulfonate Relaxes Human Mesenteric Artery Via large-conductance Ca2+-activated potassium channels
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OBJECTIVES Danshen as a traditional Chinese medicine is widely used to remedy cardiovascular and cerebrovascular diseases partly by its effects of vasodilatation, and sodium tanshinone-I-A sulfonate (DS-201) a water-soluble derivative of its active ingredient. We aimed to explore the vasodilatation mechanism of DS-201 at the molecular level by investigating the effect of DS-201 on large-conductance Ca2+- activated potassium channels (BKCa) in human mesenteric artery smooth muscle cells.

METHODS Rings of human mesenteric artery were contracted with 60 mM KCl, and changes in isometric tension were recorded. Then we observe the effect of DS-201 on BKCa, by using patch clamp technique.

RESULTS DS-201 (20 to 120 μM) induced a concentration-dependent relaxation with a maximum of 64 +/- 3% in human mesenteric artery without endothelium (n=6, P<0.05). These relaxations were inhibited by 300μM iberiotoxin. In cell-attached patch (Vm = -40 mV), 80μM DS-201 stimulates BKCa activity, DS-201 enhanced open probability (NPO) of BKCa from 0.012 +/- 0.001 to 0.039 +/- 0.009, the mean open time (To) of BKCa is markedly increased from 7.3 +/- 1.1 ms to 15.3 +/- 1.3 ms and the mean close time (TC) of BKCa is decreased from 1829.3 +/- 408.2 ms to 267.3 +/- 82.3 ms (n=6, P<0.05), but there were no significant changes in amplitude of current. In inside-out patch (Vm = -40 mV), 80μM DS-201 stimulates BKCa activity significantly: DS-201 enhanced NPO of BKCa from 0.027 +/- 0.008 to 0.175 +/- 0.084, To is markedly increased from 19.8 +/- 3.1 ms to 43.1 +/- 3.3 ms and TC is decreased from 708.1 +/- 408.2 ms to 85.6 +/- 32.3 ms (n=6, P<0.05). In the amphotericin-perforated whole-cell patch-clamp configuration, the current density of BKCa at the voltage of -60 to +30 mV had no significant change before and after adding 80 μM DS-201, but the current density of BKCa at the voltage of +40 mV, +50 mV and +60 mV was increased significantly after adding 80 μM DS-201, from 12.4 +/- 3.6 pA/pF to 17.5 +/- 3.8 pA/pF and 24.1 +/- 4.6 pA/pF to 18.7 +/- 3.6 pA/pF, 25.8 +/- 5.2 pA/pF and 34.5 +/- 3.8 pA/pF (n=4, P<0.05).

CONCLUSIONS DS-201 relaxes human mesenteric artery via stimulation of BKCa.

GW26-e1386
Mechanism of hERG potassium channel block by tolterodine
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OBJECTIVES The goal of this study was to determine whether two aromatic residues in the S6 region (Y652 and F656) are important for the inhibition effect of tolterodine on hERG channel.

METHODS hERG cRNA solution (wild type, Y652A and F656A) were injected and expressed in Stages IV and V Xenopus laevis oocytes. And the oocytes were incubated at 17 °C in ND96 solution. The currents were recorded using standard two-microelectrode voltage-clamp technique.

RESULTS The data collected from wild type channels indicated that tolterodine blocked I_{hERG} in a concentration-dependent manner (IC_{50} = 60.73 nmol/L). The steady state activation and inactivation curves moved to the positive and negative, respectively. Figure 1 showed that inhibition of the drug was dependent on the open state of the channel. In addition, it was found that the mutants of Y652A and F656A significantly reduced the blocking effect of drug and produced about 345-fold and 124-fold increases in IC_{50}, respectively.