

**Results** The demographic information for 132 subjects showed that subjects with CAD tended to have more unfavourable lipoprotein variables. Genotype distributions at both sites were different between the CAD and control groups. The apo E gene alleles were associated with the plasma levels of lipids and lipoproteins (all  $p < 0.05$ ); The control group had higher apo E  $\epsilon_2$  frequencies than the CAD group ( $p < 0.001$ ) and " $\epsilon_2$ " was significantly correlated with occurrence of CAD ( $p < 0.001$ ).

**Conclusion** The results suggest that the apo E gene polymorphism do have influence circulating levels of lipids and lipoproteins and that individuals with apo E " $\epsilon_2$ " are likely to have a reduced risk of developing CAD in northern Chinese.

### e0302 EFFECTS OF XUEZHUKANG ON BLOOD LIPIDS AND THE LEVELS OF PLASMA ENDOTHELINS, THROMBOXANE B<sub>2</sub>, 6-KETO-PGF $\alpha$ —1A IN PATIENTS WITH PRIMARY HYPERLIPIDAEMIA

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**Objective** To observe the effects of Xuezhikang on blood lipids and the levels of plasma endothelins, thromboxane B<sub>2</sub>, 6-keto-PGF $\alpha$  in patients with primary hyperlipidaemia.

**Methods** 120 patients with primary hyperlipidaemia were enrolled in this study, 82 males and 38 females, age 36–74 years old, average ages (55 $\pm$ 9) years old. 12 weeks after taking Xuezhikang, the clinical effect and the effect on the level of plasma endothelins, thromboxane B<sub>2</sub>, 6-Keto-PGF $\alpha$  were compared before and after the treatment, and the relation between blood lipids and ratio of plasma endothelins, thromboxane B<sub>2</sub> to 6-Keto-PGF $\alpha$  were analysed.

**Results** 12 weeks after treatment, the level of TG, cholesterol (TC), low density lipoprotein cholesterol (LDL-C) and apoB<sub>100</sub> decreased sharply ( $p < 0.05$ – $0.001$ ); the level of serum high density lipoprotein cholesterol (HDL-C) elevated ( $p < 0.05$ ); ratio of plasma endothelins decreased sharply ( $p < 0.001$ ); rate value of thromboxane B<sub>2</sub> to 6-Keto-PGF $\alpha$  before treatment was higher than health people but lower after treatment ( $p < 0.01$ ). There were positive correlations between the decreased TC, TG, LDL-C and decreased ET-1, the ratio TXB<sub>2</sub>/6-keto-PGF $\alpha$  ( $r = 0.832$ – $0.963$ ,  $p < 0.01$ – $0.001$ ). The same positive correlation was found between the decreased ET-1 and the ratio of TXB<sub>2</sub>/6-keto-PGF $\alpha$  ( $r = 0.987$ ,  $p < 0.001$ ).

**Conclusions** Plasma endothelins level and ratio of thromboxane B<sub>2</sub> to 6-Keto-PGF $\alpha$  increased in the patients with primary hyperlipidaemia. Xuezhikang not only effectively adjusted blood lipids level but also reduced plasma endothelins level and ratio of thromboxane B<sub>2</sub> to 6-Keto-PGF $\alpha$ .

### e0303 SIGNIFICANCE OF OXIDISED LOW-DENSITY LIPOPROTEIN IN CORONARY ATHEROSCLEROTIC HEART DISEASE

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**Objective** In this study, control group are people with normal coronary arteries. This study is to discuss the relationship between LDL, OX-LDL and control group, SAP group, UAP group, AMI group and contraction of LDL and OX-LDL.

**Methods** Experimental group are 300 CHD patients without taking lipid-lowering drugs in one month who admitted in the department of cardiomyopathy from August 2008 to August 2009. They are divided into SAP group (100 cases), UAP group (100 cases), AMI (100 cases). The control group are 100 cases of patients who are randomly

selected and confirmed without CHD by coronary angiography in the same period in our department. Information includes gender, age, smoking, drinking, hypertension, diabetes, levels of LDL and OX-LDL. We analysis patients' basic information, the level and correlation of LDL and OX-LDL in control group, SAP group, UAP group and AMI group.

**Results** 1. There are no significant difference between control group and CHD groups in basic information ( $p > 0.05$ ). 2. Concentration of LDL in CHD group is significant difference compared with control group ( $p < 0.01$ ). Concentration of LDL in UAP group is no significant difference compared with SAP group ( $p > 0.05$ ). Concentration of LDL in AMI group is significant difference compared with SAP group ( $p < 0.01$ ). Concentration of LDL in AMI group is no significant difference compared with UAP group ( $p > 0.05$ ). 3. Concentration of OX-LDL in CHD group is significant difference compared with control group ( $p < 0.01$ ). Concentration of OX-LDL in UAP group is significant difference compared with SAP group ( $p < 0.05$ ). Concentration of OX-LDL in AMI group is significant difference compared with SAP group ( $p < 0.01$ ). Concentration of OX-LDL in AMI group is significant difference compared with UAP group ( $p < 0.01$ ). 4. There is no correlation between concentration of LDL and OX-LDL in all groups ( $p > 0.05$ ).

**Conclusions** 1. We confirm that LDL and OX-LDL are risk factors for CHD. There are no significant differences about the concentration of LDL in CHD groups, however, there is significant differences about the concentration of OX-LDL in CHD groups. The level of OX-LDL is in escalating trend. 2. There is no correlation between concentration of LDL and OX-LDL in all groups ( $p > 0.05$ ) and OX-LDL play a more important role in the process of CHD. Compared with LDL, measuring OX-LDL is more meaningful in the treatment and prevention of CHD.

### e0304 LONG-TERM CORONARY HEART DISEASE RISK ASSOCIATED WITH VERY-LOW-DENSITY LIPOPROTEIN CHOLESTEROL IN CHINESE: THE RESULTS OF A 15-YEAR CHINESE MULTI-PROVINCIAL COHORT STUDY (CMCS)

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**Aims** Few studies have examined very-low-density lipoprotein (VLDL) cholesterol as an independent risk factor of coronary heart disease (CHD) or its combined effects with coexisting cardiac risk factors. The current study examined the association between VLDL cholesterol and the risk of future CHD events.

**Methods and results** This study reports the association of VLDL cholesterol level and long-term CHD risk, as well as the combined effects of VLDL cholesterol and LDL cholesterol with other cardiovascular disease (CVD) risk factors. The cohort comprises 30,378 participants aged 35–64 years from 11 Chinese provinces. All participants were followed up annually until 2007. We found 20% of the sample population had elevated VLDL cholesterol  $\geq 30$  mg/dl. Elevated VLDL cholesterol levels were found to increase CHD risk by 2.19–3.36 fold in people with LDL cholesterol within the normal range and presenting no other major risk factors. This effect was exacerbated in those with elevated LDL cholesterol levels, and further increased CHD risk in those displaying three or more risk factors. The population-attributable risk proportion (PAR%) of CHD associated with VLDL cholesterol was calculated to be 17.3%, higher than that associated with LDL cholesterol alone.

**Conclusions** In a large Chinese cohort, elevated VLDL cholesterol was found to be significantly associated with elevated CHD risk, similar to that observed with LDL cholesterol. CHD risk was further

amplified when elevated VLDL cholesterol was combined with elevated LDL cholesterol and/or the presence of major CVD risk factors.

## Epidemiology and Preventive Medicine: Metabolic Syndrome and Diabetes

### e0305 THE EFFECT OF PROFILIN-1 ON VASCULAR INJURY CAUSED BY ADVANCED GLYCATION END PRODUCTS

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**Objective** The aims of this study were to explore the effect of Profilin-1 on vascular injury caused by advanced glycation end products, So as to provide a new therapeutic approach with diabetic vascular complications.

**Methods** Human umbilical vein endothelial cells were incubated with different concentrations of AGEs-BSA ( $50 \text{ mg} \cdot \text{L}^{-1}$ ,  $100 \text{ mg} \cdot \text{L}^{-1}$ ,  $200 \text{ mg} \cdot \text{L}^{-1}$ ) for various periods of time (6–24 h). The levels of ADMA and NO in the conditioned medium, the protein expression of Profilin-1 for cells were determined.

**Results** AGEs-BSA increased the protein expression of Profilin-1 and ADMA in a concentration and time-dependent manner. Incubation with high concentration glucose ( $30 \text{ mmol/L}$ ) for 24 h elevated the levels of NO, and AGEs-BSA ( $200 \text{ mg} \cdot \text{L}^{-1}$ ) decrease the levels of NO. AGEs-BSA ( $200 \text{ mg} \cdot \text{L}^{-1}$ ) could decrease the levels of NO in the conditioned medium, the difference were significant after 24 h.

**Conclusion** Profilin-1 may be involved in “metabolic memory” induced by the advanced glycation end products.

### e0306 SERUM CONCENTRATIONS OF RESISTIN AND ADIPONECTIN IN CASES WITH IMPAIRED GLUCOSE TOLERANCE

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**Objective** Recent studies indicated that resistin and adiponectin take some roles in the glucose homeostasis and suggested there were associations among resistin, adiponectin and glucose tolerance. Therefore we investigate the serum levels of resistin and adiponectin in impaired glucose tolerance (IGT) cases in the present study.

**Methods** 82 subjects were included, divided into IGT group (27 cases) and normal glucose tolerance (NGT) group (55 subjects) based on the oral glucose tolerance test. Body mass index (BMI), waist circumference, blood pressure, fasting lipids, glucose, insulin and C-peptide were measured, and adipocytokines such as resistin, adiponectin, leptin, TNF- $\alpha$ , interleukin-6 (IL-6) and C-response protein (CRP) were also examined, insulin resistance was assayed by the homeostasis model assessment of insulin resistance (HOMA-IR) formula.

**Results** There were no differences in concentrations of resistin and adiponectin between IGT group and NGT group. Pearson relation analysis showed that serum resistin concentrations were positively correlated with age ( $r=0.482$ ,  $p<0.05$ ) and BMI ( $r=0.389$ ,  $p<0.05$ ), and serum adiponectin concentrations were positively correlated with HDL-c ( $r=0.524$ ,  $p<0.01$ ) and female ( $r=0.437$ ,  $p<0.05$ ), but negatively correlated with TNF- $\alpha$  ( $r=-0.437$ ,  $p<0.05$ ) in IGT cases. There were no correlations among resistin, adiponectin with fasting glucose, glucose tolerance and HOMA-IR. In IGT cases with overweight and obesity, serum resistin concentrations were higher than

those in IGT cases with normal weight ( $16.3 \pm 7.5 \text{ ng/ml}$  vs  $9.2 \pm 6.2 \text{ ng/ml}$ ,  $p<0.01$ ), and serum resistin concentrations positively correlated with age ( $r=0.482$ ,  $p<0.05$ ) and BMI ( $r=0.380$ ,  $p<0.05$ ). In IGT cases, the concentrations of adiponectin were higher in females than males ( $12.2 \pm 7.1 \text{ } \mu\text{g/ml}$  vs  $6.1 \pm 5.5 \text{ } \mu\text{g/ml}$ ,  $p<0.05$ ).

**Conclusions** In IGT cases, serum resistin and adiponectin concentrations are normal, however, serum resistin concentrations were higher in IGT cases with overweight and obesity while adiponectin were higher in female IGT case.

### e0307 CLINICAL RESEARCH OF NONINVASIVE CARDIAC HAEMODYNAMICS IN MIDDLE-AGED AND OLD WITH TYPE 2 DIABETES MELLITUS

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**Objective** To explore the characteristics of cardiac haemodynamics in middle-aged and old with type 2 diabetes mellitus, and to discussion the sensitive indicators to determine the early heart disease by Lifegard ICG Haemodynamic Monitor.

**Methods** 218 individuals (mean age  $62.11 \pm 10.71$  years) were recruited in this study. Cardiac output (CO), cardiac index (CI), systemic vascular resistance (SVR), systemic vascular resistance index (SVRI), stroke volume (SV), stroke index (SI), thoracic fluid content (TFC), acceleration index (ACI), left cardiac works index (LCWI), pre-ejection period (PEP), left ventricular ejection time (LVET), velocity index (VI), contraction time ratio (STR), heart rate (HR) and mean arterial pressure (MAP) were measured using Lifegard ICG Haemodynamic Monitor.

**Results** (1) Compared with the healthy controls, there was significant difference in the waist-hip ratio (WHR), fasting blood glucose (FPG), total cholesterol (TC), systolic blood pressure (SBP), diastolic blood pressure (DBP), pulse pressure (PP), acceleration index (ACI), velocity index (VI), pre-ejection period (PEP), contraction time ratio (STR) of patients with type 2 diabetes mellitus ( $p<0.05$  or  $p<0.01$ ). (2) Compared with the healthy controls, there was significant difference in the fasting blood glucose (FPG), acceleration index (ACI), velocity index (VI) of patients with pre-diabetes ( $p<0.05$  or  $p<0.01$ ). (3) Correlation analysis: ACI related negatively with body mass index, waist-hip ratio, fasting blood glucose, systolic blood pressure, diastolic blood pressure, mean artery pressure and heart rate; PEP related positively with body mass index; VI related negatively with body mass index, waist-hip ratio, fasting blood glucose, systolic blood pressure, diastolic blood pressure, mean artery pressure and heart rate; STR related positively with body mass index and waist-hip ratio.

**Conclusion** Cardiac haemodynamics impaired to varying degrees in diabetes mellitus and pre-diabetes, the body mass index is the common risk factor on the reduction of these indicators. ACI and VI measurements are noninvasive and sensitive indicators of evaluating abnormalities of cardiac haemodynamics in diabetes mellitus.

### e0308 PROTEOMIC FEATURES INDUCED BY INSULIN ON VASCULAR SMOOTH MUSCLE CELLS FROM SPONTANEOUS HYPERTENSIVE RATS IN VITRO

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Hyperinsulinemia is a risk factor in atherosclerosis formation that it stimulated VSMCs proliferation and migration. To understand the underlying molecular mechanism involved in the processes of