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

**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 mg·L⁻¹, 100 mg·L⁻¹, 200 mg·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 mmol/l) for 24 h elevated the levels of NO, and AGEs-BSA (200 mg·L⁻¹) decrease the levels of NO. AGEs-BSA (200 mg·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.

**Clinical Research of Noninvasive Cardiac Haemodynamics in Middle-Aged and Old with Type 2 Diabetes Mellitus**

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

**Methods** 218 individuals (mean age 62.11±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 (FBG), 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 (FBG), 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.

**Proteomic Features Induced by Insulin on Vascular Smooth Muscle Cells from Spontaneous Hypertensive Rats in Vitro**

**Objective** 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