

**GW28-e0444****On sex hormone level in diabetic patients and hypertension based on k-means clustering**Zhenbing Yuan,<sup>1</sup> Shuli Guo,<sup>1</sup> Lina Han<sup>2</sup><sup>1</sup>School of Automation, Beijing Institute of Technology; <sup>2</sup>Nanlou Branch of Chinese PLA General Hospital

**OBJECTIVES** Sex hormone levels in elderly male patients with type 2 diabetes mellitus (T<sub>2</sub>DM) and hypertension were analyzed based on a classical k-means clustering algorithm to explore the correlation between serum sex hormone levels, blood lipid (including triglyceride, cholesterol, low density lipoprotein, high density lipoprotein, apolipoprotein A and apolipoprotein B), insulin, and blood tension.

**METHODS** 600 cases of clinical data were randomly selected from the hospital's existed database including 400 cases as the test group and 200 cases as the control group. A high dimension clinical data model such as height, weight, age, waist circumference, pulse rate, heart rate, systolic blood pressure, diastolic blood pressure, triglyceride (TC), low density lipoprotein (LDL), high density lipoprotein (HDL), fasting blood glucose, total cholesterol (CH), serum androgen (T), estrogen (E<sub>2</sub>), and insulin was established. The data were processed by statistical methods, and the initial clustering center points were determined according to the characteristic density. In addition, the initial center points should be evenly distributed. The different norm was selected to measure the distance between the cluster initial center points and the different data objects. The data objects were assigned to the class where each cluster center point was located according to the minimum principle of distance. Then the mean of each class was calculated as the next iteration of the clustering center point.

**RESULTS** The list of the rapid clustering analysis showed that the data set was divided into three classes. The E<sub>2</sub> level in elderly males with T<sub>2</sub>DM was higher than that in normal group while T is declining, and the ratio of E<sub>2</sub>/T was significantly higher than that of the control group. Serum E<sub>2</sub> level in patients with diabetes mellitus complicated with hypertension was significantly lower than that in normal diabetic group, E<sub>2</sub>/T is still higher than the normal blood pressure group; hypertensive patients with insulin, total cholesterol was significantly higher than normal blood pressure group. The center table showed that the final center positions of the center points has changed greatly from the initial center positions. The differences between the indices (mean variance and degree of freedom) of each data set were obvious. The iteration history table shows that the iterative process of this clustering is fast.

**CONCLUSIONS** Elderly male patients with type 2 diabetes mellitus suffered from significant sex hormone abnormalities, lipid metabolism disorders and insulin resistance. It may be involved in the formation of diabetes with hypertension.

**GW28-e0505****Hospitalized Acquired Long QT Syndrome Patients with Malignant Cancer- Follow-up from Single Center**Yajuan Lin,<sup>1</sup> Haixu Yu,<sup>1,2</sup> Yunlong Xia<sup>1</sup><sup>1</sup>Department of Cardiology, First Affiliated Hospital of Dalian Medical University, Dalian, Liaoning, China; <sup>2</sup>Beijing AnZhen Hospital, Capital Medical University, the Key Laboratory of Remodeling-Related Cardiovascular Diseases, Ministry of Education, Institute of Heart, Lung and Blood Vessel Diseases, Beijing, China

**OBJECTIVES** Recently we had reported the malignant cancer is one of the major contributors to all-cause mortality in acquired long QT syndrome (ALQTS) in hospitalized patients in China. This study aims to determine characteristics in ALQTS patients with malignant cancer showing a markedly prolonged QT interval.

**METHODS** Clinical follow-up was performed in both ALQTS group (QTc  $\geq$  500ms, n=150) and control group (QTc  $\leq$  440ms, n=293). The age, gender and cancer diagnosis between ALQTS and control group were comparable (p=NS). Clinical characteristics, ECG parameters, chemotherapy drugs or QT-prolonging medications, laboratory test results were also elucidated. The death of all causes occurred during hospital stay and after discharge was investigated in all study subjects. Cox regression and Kaplan-Meier survival analyses were performed to determine the effects of markedly prolonged QTc on all-cause mortality.

**RESULTS** 1) Follow up for 351 $\pm$ 346 vs. 514 $\pm$ 305 days, the ALQTS subjects with a markedly prolonged QTc (520 $\pm$ 28 ms vs. 422 $\pm$ 15 ms, p<0.0001) had a much higher all-cause mortality than the control group (63.3% vs. 33.4%, p<0.001).

2) More patients in the ALQTS group had a baseline condition of hypertension (29.3% vs. 16.4%, p < 0.05), infection (21.3% vs. 5.1%, p < 0.001), Hematologic diseases (12.0% vs. 1.4%, p < 0.001), hypokalemia (31.7% vs. 5.2%, p < 0.001), hypocalcemia (22.7% vs. 4.9%, p < 0.001) and QT-prolonging drugs (31.3% vs. 6.8%, p < 0.001).

3) After adjustments, odds ratio for chemotherapy drugs affected microtubulin was 1.995 (95%CI 1.225-3.228, p < 0.05).

4) Age (HR 1.02, 95%CI 1.00-1.04, p<0.05), Gastrointestinal diseases (HR 2.98, 95%CI 1.71-5.21, p<0.05), Renal failure (HR 7.49, 95%CI 2.38-23.56, p<0.05), Hypokalemia (HR 2.36, 95%CI 1.46-3.80, p<0.05), Antimicrotubule agents (HR 1.77, 95%CI 1.02-3.09, p<0.05) are the major contributors to all-cause mortality in ALQTS.

**CONCLUSIONS** Among malignant cancer patients, the all-cause mortality in patients with markedly prolonged QTc is significantly higher than those without QTc prolongation. It is overlooked by oncologists that QTc appears to prolong because of the complexity of diseases and medicines in the process of treatment. Measurement should be promptly taken between oncology and cardiology department to monitor and prevent ALQTS.

**GW28-e0594****Comparison of control fasting plasma glucose of exercise-only versus exercise-diet among a pre-diabetic population: A meta-analysis**Liang Zheng,<sup>1</sup> Qin Lan,<sup>1,2</sup> Jue Li,<sup>2</sup> Zhongmin Liu,<sup>1</sup> Huimin Fan<sup>1</sup><sup>1</sup>Research Center for Translational Medicine, Shanghai East Hospital; <sup>2</sup>Tongji University School of Medicine

**OBJECTIVES** The present meta-analysis compared the effect of exercise-only to exercise-diet interventions on plasma glucose levels among a pre-diabetic population.

**METHODS** A literature search was conducted using PubMed, EMBASE and Cochrane databases. The Cochrane Collaboration tool was used to assess the quality of each trial. Two reviewers independently performed quality assessment of all included articles. A random effects model was used to calculate the pooled effect and funnel plot show the publish bias.as conducted to

**RESULTS** A total of 4,021 participants from 12 studies were included in this meta-analysis, 2,045 of them were in the intervention group and 1,976 were in the control group. Compared to the exercise-only interventions, the exercise-diet interventions showed a significant effect on decreasing fasting plasma glucose levels, with a weighted mean difference (WMD) =-0.22 mmol/L, 95%CI:-0.25,-0.18 (Z=12.06, P<0.05). The subgroup effect of exercise-only interventions did not produce a statistically significant result (WMD=-0.09 mmol/L, 95% CI:-0.18,0.00, Z=1.91, P>0.05). According to the intervention periods, the pooled effect in $\geq$ 2 years group was the highest and its WMD (95% CI) was -0.24 mmol/L (-0.43,-0.05). The pooled effects were statistically significant among the elderly, and those of American and European descent, with WMD (95% CI) being -0.19 mmol/L(95%CI:-0.22,-0.15), -0.17 mmol/L (-0.21,-0.12) and -0.22 mmol/L(-0.27,-0.17), respectively.

**CONCLUSIONS** Evidence from published trials indicates that exercise-diet interventions showed a significant effect on decreasing fasting plasma glucose levels.

**GW28-e0871****Rationale and design of the randomized controlled trial of intensive versus usual ECG screening for atrial fibrillation in elderly Chinese by an automated ECG system in the community health center in Shanghai (AF-CATCH)**Yi Chen,<sup>1</sup> Jiguang Wang<sup>1</sup><sup>1</sup>Ruijin Hospital, Shanghai Jiao Tong University School of Medicine

**OBJECTIVES** The randomized controlled trial will investigate whether more frequent electrocardiographic (ECG) recordings and analyses with an automated ECG system would improve detection of atrial fibrillation compared to a single annual ECG screen in elderly Chinese in the community health center.

**METHODS** Men and women ( $\geq$ 65 years) will be randomized into intensive (n=3500) and usual screening groups (n=3500), and within the intensive screening group into intensive (n=2625) and more intensive subgroups (n=875). ECG recordings will be performed with an automated ECG analysis system AliveCor® Heart Monitor at 1 year in the usual screening group, at 3, 6, 9 and 12 months in the intensive screening subgroup, and at 1, 2, 3 and 4 weeks and 3, 6, 9 and 12 months in the more intensive screening subgroup. The