METHODS We choose 40 clean and healthy Kunming mice, and divide them into a group. After 2 weeks' adaptability feeding, the mice are randomly divided into control group (normal diet), sport + HMB group (0.45 g/Kg body weight HMB lavage daily), sport + glutamine group (2.7 g/Kg body weight glutamine lavage daily), sport + HMB + glutamine group (0.45 g/Kg body weight HMB and 2.7 g/Kg body weight glutamine lavage daily). All groups receive a weighed free drug dose once a week to determine the effect of drug doses. In the study we set animal model mice by swimming. After adaptability feed, all the mice swim 40min without weight loading two days a time(water temperature is 19 °C, water depth is 15 cm, the pool diameter is 40 cm), in the second week swim 70min two days a time, in the third week swim 100 min and swim 110 min in the fourth week.

We pick eyeball to take 1ML blood, and then kill mice by dislocate the neck after swimming immediately which the mice are taken which blood on the stage to take the double leg calf muscles, liver, and the determination of the muscle of mice MDA/SOD, blood BUN and other biochemical indicators. Use the single factor analysis of variance to compare HMB and glutamine supplement and single irrigation suits HMB, glutamine differences in ability of aerobic exercise in mice.

RESULTS After supplying four weeks, the results indicate that the mixed group's weight, the swimming time of exhaustion, MDA, SOD, SDH, hepatic glycogen and BUN all have significant differences when comparing with the other groups (P<0.01). Meanwhile, the mixed group's content of MDA in gastrocnemius and BUN in blood are the lest, and the content of SOD, SDH and hepatic glycogen are the most.

CONCLUSIONS (1) Supplementary feeding glutamine alone, HMB and glutamine are combined supplementary feeding can all significantly increase the weight of mice, while the HMB group' weight were less than the control group, which may indicate that the effect of increasing weight is not obvious.

(2) HMB have the best effect of prolonging the swimming time, which may explain the relatively light weight, aerobic capacity is relatively strong.

(3) HMB, Glu supplementary feeding mice either alone or combined complementary, which all increase the SOD and reduce the MDA, indicating that nutritional supplements can improve the capacity of Anti-fatty liver and the joint feeding is the most obvious.

(4) HMB, Glu supplementary feeding mice either alone or combined, which all can significantly increase the glycogen content in mice. Meanwhile, the effect of HMB alone and HMB, glutamine jointly feeding are quite similar.

GW26-e5320 Effect of exercise training on oxygen metabolic equivalent and left ventricular function in patients with acute myocardial infarction after PCI
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OBJECTIVES To observe the effect of exercise training on oxygen metabolic equivalent and left ventricular function in patients with acute myocardial infarction after percutaneous coronary intervention(PCI).

METHODS A total of 50 AMI patients after PCI were divided into two groups randomly; 25 patients were in exercise group and 25 patients in control group. Cardiopulmonary exercise test was undergone for all patients about 2-4weeks after AMI onset. Individual exercise prescription was made for the patients in exercise group according to the results of cardiopulmonary exercise test and then the patients were trained according the exercise prescription. Exercise prescription and training were not subjected to the patients in control group. Exercise cardiopulmonary function test and left ventricular ejection fraction was examined again for all the patients about 6 months after AMI onset.

RESULTS The 23 patients in exercise group finished the Rehabilitation exercise therapy, 24 patients in control group finished Cardio-pulmonary exercise test. After exercise training, the METs of exercise group increased more obviously than in control group (1.44±0.94) vs. (3.94±0.38), P<0.001, LVEF of exercise group more than that in control group (0.526±0.040) vs. (0.488±0.037), P<0.01.

CONCLUSIONS Individual exercise prescription and training for the patients with AMI after PCI can increase their METs and LVEF, deserve to extend for it.

GW26-e0117 The clinical value of Six-minute Walking Exercise on patients with heart failure resulting from coronary heart disease
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OBJECTIVES To investigate the efficacy of supplemented therapy with six-minute walking exercise training on patients with heart failure resulting from coronary heart disease with concomitant routine medication.

METHODS Eighty patients with heart failure resulting from coronary heart disease were randomly divided into the exercise group and the control group, with forty cases in each. In the exercise group, the average age was 61.2±9.8 years old and there were 25 male and 15 female patients. The control group included 26 male and 14 female patients, whose mean age was 58.1±10.9 years old. Each group was treated with routine medication. Furthermore, the exercise group was additionally given six-minute walking exercise training. Before and after three months of treatment, the plasma brain natriuretic peptide (BNP) levels and the six-minute walk distance were determined.

RESULTS After the three-month treatment, the LVESD, LVEDD, LVEF, the plasma levels of BNP and the six-minute walk distance were significantly improved in both the exercise group and the control group (P<0.05). However, the LVEF, plasma levels of BNP and six-minute walk distance of the exercise group were ameliorated obviously more than the control group after three months of therapy (P<0.05).

CONCLUSIONS The six-minute walking exercise can evidently improve exercise tolerance. For patients with heart failure resulting from coronary heart disease, their exercise capacity improved after treated with routine medication, the supplemented therapy with six-minute walking exercise is more beneficial to the recovery of cardiac function. Therefore, exercise should be encouraged among patients with heart failure resulting from coronary heart disease to improve the quality of life.
total antioxidant ability T-AOC. By electroacupuncture zusanli point and shenshu point can improve total antioxidant ability T-AOC in kidney, in the local area that intervention can improve the antioxidation ability, reduce movement condition of the body too much free radicals oxidative damage, protect the red cell membrane, increase oxygen transport and use of, so as to improve the ability of sports.

**CARDIOVASCULAR-DISCIPLINARY RESEARCH**

**GENERAL MEDICINE AND CHRONIC DISEASE MANAGEMENT**

GW26-e1541

Association of circadian rhythm index of heart rate and dysfunction of autonomic nervous system in the elderly with cardiovascular disease risk factors.

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**OBJECTIVES**

Coronary heart disease (CHD), primary hypertension (EH) and diabetes mellitus (DM) were the risk factors for adverse cardiovascular events and dysfunction of autonomic nervous system, associated to the adverse cardiovascular events closely, is the common process in above three diseases. Circadian rhythm index of heart rate can evaluate the function of autonomic nervous system. This study aimed to evaluate associations of circadian rhythm index of heart rate with dysfunction of autonomic nervous system in the elderly with cardiovascular disease risk factors.

**METHODS**

112 subjects (aged 72.6±8.40 years) were enrolled in this study. They were divided into A (not suffering from diseases, n=15), B (suffering from one disease, n=35), C (suffering from two diseases, n=32), D (suffering from three diseases, n=30) four groups according to the number of disease (CHD, EH, DM) they were suffering from. Daytime average heart rate, nocturnal mean heart rate, 24-hour average heart rate, circadian rhythm index of heart rate were determined by 24-hour ambulatory electrocardiogram to evaluate the function of autonomic nervous system in all subjects.

**RESULTS**

The circadian rhythm index of heart rate was negatively correlated to the number of the diseases that subjects were suffering from (r=-0.439, P<0.01). The nocturnal mean heart rate did not show markedly differential in statistics (P>0.05). Daytime average heart rate, 24-hour average heart rate and circadian rhythm index of heart rate decreased regularly from group A to D (70.29±7.36 beats/min vs. 68.52±5.21 beats/min vs. 63.44±8.65 beats/min vs. 61.29±9.25 beats/min, P<0.05; 66.57±6.77 beats/min vs. 65.96±8.90 beats/min vs. 62.23±8.27 beats/min vs. 61.23±9.00 beats/min, P<0.05; 14.21±5.30% vs. 9.82±7.17% vs. 5.11±8.33% vs. 1.97±9.67%, P<0.05).

**CONCLUSIONS**

The elderly have lower circadian rhythm index of heart rate and more serious dysfunction of autonomic nervous system in the elderly with cardiovascular disease risk factors.

GW26-e5423

Strategies for Investigations of Patients Presenting with Syncope

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**OBJECTIVES**

Syncope is a common reason for presentation in the emergency room (ER). In the past, physicians could not determine the cause of syncope in more than 50% of cases. With many new equipment available now, are we able to find the causes of syncope presenting in the ER?

**METHODS**

200 consecutive patients presenting to the ER with diagnosis of syncope were included. They were examined by ER physicians, hospitalists and specialists (neurologists and cardiologists). Then they underwent testsings accordingly. Their baseline characteristics (age, sex, previous cardiovascular and neurological history, medications, etc) were recorded and tabulated. Results of orthostatic blood pressure (BP), tilt table testing, echocardiography, stress test, coronary angiogram, Holter monitoring, pacemaker or implantable cardioverter defibrillator (ICD), and implanted long term recording (ILR) were recorded tabulated.

**RESULTS**

The results showed the majority of syncope episodes were of vasovagal origin (vasovagal syncope) (>30%). The incidence happened frequently on both sides of the age distribution (young and old age). The best tool to detect the problem is by a good history and physical examination. The second highest incidence was the orthostatic hypotension in old age. The best tool for detection was measurement of supine and standing BPs. In the first 2 cases, structural heart diseases need to be ruled out by echocardiography, whereas cardiomyopathy and significant valvular disease. The yield of detecting significant cardiovascular disease by echocardiogram was low if there was a good history and physical examination. In patients with pacemakers or ICD, the review of the recorded memories showed low levels of arrhythmias causing syncope. When there was a current unexplained syncope, then the ILR could give the most results. Neurological causes of syncope were rare (<5%).

**CONCLUSIONS**

For patients coming with syncope, the best tool of investigation is a detailed history and physical examination. With it, the cause of more 50% of cases of syncope could be determined. Vaso-vagal syncope happened more in young and old patients. Orthostatic hypotension was seen more in elderly patients. With cardiovascular testsings, the results gave higher yield if the CV problems were suggested by the H and P. With a normal H and P, the yield of echocardiography, tilt table test stress test or holter monitoring was low. When there was really unexplained syncope, ILR was the best tool to detect the arrhythmia problems. Neurological cause of syncope was rare.

GW26-e1542

Relationship between heart rate variability and dysfunction of autonomic nervous system in the elderly with common diseases

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**OBJECTIVES**

Coronary heart disease(CHD), primary hypertension(EH), diabetes mellitus(DM), benign prostatic hyperplasia(BPH) have become the common diseases in the elderly and dysfunction of autonomic nervous system is the common process in above four common diseases. Dysfunction of autonomic nervous system is closely related to the adverse cardiovascular events and can be evaluated by heart rate variability. The aim of this study is to identify potential links between heart rate variability and dysfunction of autonomic nervous system in the elderly with common diseases.

**METHODS**

A total of 144 subjects (aged 75.67±9.10 years) were divided into A (not suffering from common disease, n=35), B (suffering from one common disease, n=36), C (suffering from two common diseases, n=59), D (suffering from three or four common diseases, n=38) four groups according to the number of common disease (CHD, EH, DM, BPH) they were suffering from. SDNN, SDNNi, pNN50, rMSSD, SDANN, triangle index were determined by 24-hour ambulatory electrocardiogram to evaluate the function of autonomic nervous system in all subjects.

**RESULTS**

SDNNi and pNN50 did not show markedly differential in statistics (P>0.05). SDNN and triangle index decreased regularly from group A to D (132.82±20.63ms vs. 126.89±21.01ms vs. 122.92±28.04ms vs. 120.49±33.04ms vs. 118.79±32.01ms, P<0.05; 29.31±4.48vs. 26.58±8.34 vs. 24.12±6.86 vs. 20.63±8.58, P<0.05). SDNNi and rMSSD also decreased regularly from group A to D (32.82±12.50ms vs. 31.92±28.04ms vs. 30.00±33.04ms vs. 28.79±32.01ms, P<0.05; 75.27±16.4ms vs. 72.19±32.60ms, P<0.05). The incidence of unexplained syncope (SDNN, rMSSD, SDANN, triangle index) and more serious dysfunction of autonomic nervous system when they suffer from more common diseases.

**CONCLUSIONS**

Grim status of hypertension in rural China: Results from Northeast China Rural Cardiovascular Health Study 2013

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**OBJECTIVES**

The last study reported the prevalence of hypertension in rural Northeast China was conducted approximately ten years ago. Further data on the current status of hypertension and the cardiovascular risk factor pattern in rural China is needed. The Northeast China Rural Cardiovascular Health Study (NECRUHS) is a cross-sectional study designed to evaluate hypertension status, associated risk factors, and the efficacy of treatment in rural China. The study has now been completed and the results are presented in this paper.