

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

Juxiang Jin, Jie Li, Xiumei Xu  
The First Affiliated Hospital of Jilin University

**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 72.63±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. 68.21±9.21 beats/min vs. 63.44±8.65 beats/min vs. 61.59±9.25 beats/min,  $P<0.05$ ; 66.57±6.57 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 when they have more cardiovascular disease risk factors.

#### GW26-e5423

#### Strategies for Investigations of Patients Presenting with Syncope

Thach Nguyen,<sup>1,2</sup> Hau Van Tran,<sup>3</sup> Hoang Phan Nhat Minh,<sup>1</sup> Gianluca Rigatelli,<sup>4</sup> Ramesh Dagubati<sup>5</sup>  
<sup>1</sup>Tan Tao University School of Medicine Tan Duc City, Duc Hoa - Long An Vietnam; <sup>2</sup>St Mary Medical Center, Hobart IN; <sup>3</sup>New York Institute of Technology, College of Osteopathic Medicine, Old Westbury NY; <sup>4</sup>Cardiovascular Diagnosis and Endoluminal Interventions Unit, Rovigo General Hospital, Rovigo, Italy; <sup>5</sup>Department of Cardiovascular Sciences East Carolina University, Greenville, NC

**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 testings 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 syncopal 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 by echocardiography (ventricular 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 recurrent 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 testings, 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

Jie Li, Juxiang Jin, Lijuan Sun  
The First Affiliated Hospital of Jilin University

**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 diseases, n=11), 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 (143.09±21.28ms vs. 143.03±35.08ms vs. 128.69±35.94ms vs. 116.71±32.56ms,  $P<0.05$ ; 29.91±4.48vs. 26.58±8.34 vs. 24.12±6.86 vs. 20.63±8.58,  $P<0.05$ ). SDANN and rMSSD also decreased regularly from group A to D (132.82±12.50ms vs. 112.92±28.04ms vs. 104.00±33.04ms vs. 87.79±32.01ms,  $P<0.05$ ; 75.27±16.14ms vs. 72.19±32.60ms vs. 67.98±34.53ms vs. 54.39±21.01,  $P<0.05$ ).

**CONCLUSIONS** The elderly have lower heart rate variability(SDNN, rMSSD, SDANN, triangle index) and more serious dysfunction of autonomic nervous system when they suffer from more common diseases.

### DISEASE PREVENTION AND HEALTH EDUCATION

#### GW26-e3824

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

Zhao Li,<sup>1</sup> Liqiang Zheng,<sup>1,2</sup> Yingxian Sun<sup>1</sup>  
<sup>1</sup>The First Affiliated Hospital of China Medical University; <sup>2</sup>Shengjing Hospital of China Medical University

**OBJECTIVES** The last study reported the prevalence of hypertension in rural Northeast China was conducted approximately ten years