1 RELATIONSHIP BETWEEN BODY MASS INDEX AND BLOOD URIC ACID LEVEL IN CHINESE FEMALE POPULATION

[1]Zhuang Geng, [2]JingWei Chi, [2]Kui Che, [2]JianXia Hu, [3]Yan Zhao, [3]Ze yu Wu, [3]Chang Qing Ding*, [1]LiLi Xu*, [1]YanGang Wang. *[1]The Department of Endocrinology and Metabolism, the Affiliated Hospital of Qingdao University; [2]The Department of Thyroid Laboratory, the Affiliated Hospital of Qingdao University; [3]The Department of Neurosurgery, the Affiliated Hospital of Qingdao University*

10.1136/jim-2019-000994.1

Objective To explore the relationship between body mass index (BMI) and blood uric acid (SUA) level in a Chinese female population.

Methods Between 2004 and 2014, we used a stratified random cluster sampling method to select a general population aged 20–80 years living in the coastal areas of Shandong Province as a research sample. According to the geographical area (Yantai, Qingdao, Weihai, Rizhao, Dongying), the degree of urbanization (city, county and township) and the state of economic development, the selected samples and the sampling process were stratified. During the sampling process, a total of 8123 women were invited and eventually completed the survey. In the process of selecting volunteers, we excluded those taking diuretic drugs and those with hyperuricemia or hypouricemia. We also excluded individuals with malignant tumors, acute infectious diseases, acute inflammatory diseases and renal insufficiency. All participants underwent a standard 75 g, 2 hour oral glucose tolerance test (OGTT) and those with abnormal indicators and participants taking hypoglycemic agents were excluded. Finally, subjects who met the criteria were given venous blood in the early morning at least 12 hours after fasting and forbidden to drink water. The required biochemical indicators were measured by an automatic biochemical analyzer and the BMI was measured by measuring the participant's height and weight. The study was approved by the Ethics Committee of the Affiliated Hospital of Qingdao University. Statistical analyses were performed using Empowerstats software. Statistical significance was set at $p<0.05$. Baseline characteristics were presented as mean±SD or median (interquartile range) stratified by gender; t-tests (for normal distributions), the Kruskal-Wallis test (for non-normal distributions), and the chi-square test were used for comparison of statistical significance. The association of SUA with BMI was evaluated by linear or multivariate linear regression stratified by gender. To reveal the exact relationship between these two factors clearly, the stratified analysis, interaction test, saturation effect analysis and curve fitting were performed using EmpowerStats statistical software. Before these, covariate screening was also performed. Interaction effect was also tested to find if any other values influenced the relationship between SUA and BMI.

Results The relationship between BMI and SUA in Chinese women is not a simple linear relationship, but a U-shaped curve. When BMI decreases, the SUA content increases. As the BMI increases, the amount of SUA decreases. When the inflection point is reached, the SUA content increases with the increase in BMI.

2 CORRELATION ANALYSIS OF BONE MINERAL DENSITY AND STATIC BALANCE ABILITY IN POSTMENOPAUSAL WOMEN

[1]Lili Xu, [2]Yue Han, [3]Yan hua Zhang, [4]Xiao ying Zhang, [5]Chun Fan, [6]Hai tao Huang, [1]Peng Li, [1]Zhuang Geng. *[1]The Department of Endocrinology and Metabolism, the Affiliated Hospital of Qingdao University; [2]The Department of Gastroenterology, the Affiliated Hospital of Qingdao University; [3]The Department of Internal Medicine Two, Li Cang District Central Hospital; [4]The Emergency Department, the Affiliated Hospital of Qingdao University; [5]The Department of Oral Medicine, the Affiliated Hospital of Qingdao University; [6]The Department of International Exchange and Cooperation, the Affiliated Hospital of Qingdao University*

10.1136/jim-2019-000994.2

Objective To assess static balance ability in postmenopausal women and to explore the correlation between bone mineral density and static balance.

Methods From January 2017 to January 2018, 400 postmenopausal and non-menopausal women living in the Qingdao area of Shandong Province were included in the study. Inclusion criteria were: Han nationality, natural menopause years $\geq$1 year, 50–80 years old, non-smokers, wine drinker. Those with diseases such as diabetes, hyperthyroidism, chronic liver and kidney disease, which cause secondary and idiopathic osteopenia were excluded. (1) Questionnaires were used to collect information on the postmenopausal women such as name, gender, age, family history, osteoporosis-related symptoms (eg, lower back pain, dwarf, hunchback, fracture), related diseases (eg, thyroid disease, gastrointestinal pathology, parathyroid disease, renal insufficiency, diabetes), exercise (exercise mode, time), smoking, drinking, tea or coffee consumption, age at onset of menopause, pregnancy, parity, breastfeeding time, weight, height, blood pressure, blood sugar and other related indicators. (2) Determination of bone mineral density: the T value of the right heel of the examiner was measured using a Sahara clinical ultrasonic bone densitometer manufactured by HOLOGIC, USA. (3) Gait measurement: the Belgian Footscan Balance system was used to measure the ability of the subject to reflect the balance ability when standing still, including total trajectory length (TTW) of the trajectory of the pressure center movement and the elliptical area (EA) of movement in the 95% pressure center. (4) The difference between the non-menopausal group and the postmenopausal group was compared using the t-test of two independent samples. (5) According to the bone mineral density level, the non-menopausal group and the postmenopausal group were divided into three groups. The differences in TTW and EA were analyzed in the different bone density level groups. Further correlation analysis was used to analyze the balance indices and bone mineral density levels in the postmenopausal group.

Results Compared with the non-menopausal group, the postmenopausal group had lower bone mineral density and increased TTW and EA.

Conclusion Postmenopausal women have lower bone mineral density and lower static balance ability. Postmenopausal women's bone mineral density is negatively correlated with TTW and EA (the lower the bone mineral density, the greater the TTW and EA values). Bone density level is an important factor affecting the static balance ability of postmenopausal women.