

ORAL SESSION 30

OS 30-01

ASSOCIATION OF ORAL HEALTH WITH 10-YEAR GENERAL CARDIOVASCULAR RISK: THE KOREAN NATIONAL HEALTH AND NUTRITION EXAMINATION SURVEY

Seon Young Hwang, Jae Lan Shim. *College of Nursing, Hanyang University Medical Center, Korea, Republic of*

Objective: There is an association between periodontitis and cardiovascular disease (CVD). However, it is not known whether periodontitis and bad oral health behavior could influence on the CVD risk. This study aimed to examine whether periodontitis and bad oral health behavior predict 10-year general CVD risk using representative national data.

Design and method: Using data from the Korean National Health and Nutrition Examination Survey (KNHANES) in 2013, we selected men and women who were aged over 30 years and who had no previous CVD history (n = 4259). The data were analyzed using a complex, stratified, and multistage probability cluster sampling approach.

Results: An average age of population was 53.6 ± 14.6 years. CVD risk was estimated using Framingham General CVD score including age, gender, total cholesterol, HDL cholesterol, systolic blood pressure, smoking and diabetes. Oral health behavior score were measured by sum of daily tooth brushing frequency, use of dental floss, and experience of scaling. **Results:** An average Framingham risk score for 10-year general CVD event was 12.8 ± 10.0 points (Range -2-50) and CVD risks are $8.9 \pm 8.2\%$ (Range 0-31). The 16.6% (n = 707) of the population had a high global CVD risk >20%, and 20.9% (n = 888) and 62.5% (n = 2,664) were included in the intermediate (10-20%) and low risk group (<10%), respectively. The 31.6% (n = 1,344) had an experience of periodontal disease. Bivariate analyses showed that having periodontal disease and bad oral health behavior significantly associated with higher CVD risk scores. Logistic regression analyses showed that, when age and gender adjusted for, those who had an experience of periodontal disease were 1.48 times more chance to have intermediate CVD risk (OR 1.48, 95%CI: 1.12-1.95) and 1.98 times more chance to have high CVD risk (OR 1.98, 95%CI: 1.50-2.68) compared to low CVD risk group.

Conclusions: Education on periodontitis management and oral hygiene behavior should be included when we establish strategy for the public at risk for CVD.

OS 30-02

ANNUAL CHANGE OF CARDIO-ANKLE VASCULAR INDEX PREDICT NEW ONSET OF RETINAL ABNORMALITY IN THE URBAN JAPANESE RESIDENTS

Mao Takahashi¹, Tomoaki Shiba², Yuuiti Hori², Kenji Suzuki³, Kohji Shirai⁴. ¹Department of Cardiology, Sakura Hospital, Medical Center, Toho University, Japan, ²Department of ophthalmology, Oomori Hospital, Toho University, Japan, ³Japan Health Promotion, Japan Health Promotion Foundation, Japan, ⁴Vascular Function Laboratory, Sakura Hospital, Medical Center, Toho University, Japan

Objective: Cardio ankle vascular index (CAVI) represents arterial stiffness of the aorta, femoral artery and tibial artery. We investigated whether annual change of CAVI is related to the onset of retinal abnormality on optic fundus.

Design and method: Subjects were 1,148 (male 47.4%) urban residents who participated in cardiovascular disease (CVD) screening in Japan during 2005-2011. All subjects had normal finding of optic fundus at first health check and had not received medical treatment for CVD risk factor during this study. Annual change of cardio-ankle vascular index (DCAVI) was obtained by cox hazard ratio from least-square method for three years by each year. Several atherosclerosis risk factors were also studied. Eye examination was defined with Scheie classification.

Results: Subjects were divided into two groups, normal group (group A) (n = 1,103, male 46.5%) and new onset of Scheie H1-4 and/or S1-4 group (group B) (n = 45, male 68.9%). In first health check data, creatinine and high-density cholesterol are not different but age, body mass index, systolic blood pressure (sBP), diastolic pressure, triglyceride (TG) and CAVI were higher in group B than that of group A regardless of gender. Comparison with two groups in change of CVD risk factors for three years revealed that DsBP and age were selected as independent contributing factor for abnormal change of optic fundus in male, and age, DsBP, DTG, and DCAVI were selected as independent contributing factor for abnormal change of optic fundus in female. DCAVI was much more significant than CAVI at the beginning in female.

Conclusions: We demonstrated predictive value of CVD risk factors and CAVI for new onset of abnormal findings on optic fundus. There are gender differences regarding effect on optic fundus by change of CVD risk factor and CAVI.

OS 30-03

GENDER DIFFERENCES OF AN ARTERIAL HYPERTENSION RISK IN POPULATION WITH SLEEP DISTURBANCE IN RUSSIA / SIBERIA: WHO PROGRAM MONICA-PSYCHOSOCIAL

Valery Gafarov, Elena Gromova, Dmitriy Panov, Igor Gagulin, Almira Gafarova. *Collaborative Laboratory of Cardiovascular Diseases Epidemiology, Research Institute of Internal and Preventive Medicine, Russia*

Objective: To determine the gender differences influence sleep disturbances (SD) on the risk of arterial hypertension (AH) in the open population 25-64 years in Russia / Siberia.

Design and method: As part of the third screening WHO program «MONICA- psychosocial» a random representative sample of the population of both sexes aged 25-64 in Novosibirsk was surveyed in 1994 (men: n = 657 44.3 ± 0.4 years, the response - 82.1%; women: n = 689, 45.4 ± 0.4 years, the response - 72.5%). Registration of socio-demographic data and determining of SD were made. 229 cases of new-onset AH in women and 46 cases in men were identified over 16-year period.

Results: In general population aged 25-64 years 48.6% of men and 65.9% of women had SD. The social gradient in both men and women with SD had the following differences: marital status structure is not significantly different, but widowhood increased the risk of AH in men over HR = 14.6, than women HR = 5.6 (p < 0.0001). Low level of education was associated with SD in women more likely HR = 10.3, the same picture was in occupational groups. Over 5 years men with SD had higher risk of AH HR = 5.4 than women HR = 4.35. After 10 years the risk of AH was higher in women HR = 2.68 than men HR = 2.3. After 16 years there was a tendency in AH risk in men HR = 1.2 (p < 0.05) but not in women HR = 1.05 (95%CI 0.73-1.48; p > 0.05).

Conclusions: SD are more prevalent in women than in men. The risk of AH was higher among widowed men than in women. The low level of education was significantly associated with SD, only women. At the same time the risk of AH was higher in men than women with SD.

OS 30-04

FUTURE HYPERTENSION CAN BE PREDICTED USING ELECTROCARDIOGRAM

Tomonori Sugiura¹, Hiroyuki Takase², Shunsuke Murai¹, Sumiyo Yamashiyama¹, Nobuyuki Ohte¹, Yasuaki Dohi³. ¹Department of Cardio-Renal Medicine and Hypertension, Nagoya City University Graduate School of Medical Sciences, Japan, ²Department of Internal Medicine, Enshu Hospital, Japan, ³Department of Internal Medicine, Faculty of Rehabilitation Science, Nagoya Gakuin University, Japan

Objective: The heart is one of the target organs of hypertension. Cardiac muscle responds to an increase in afterload by developing hypertrophy. In the process of developing hypertension, the heart is exposed to a transiently, but frequent, increase in afterload. The present study was designed to test the hypothesis that left ventricular hypertrophy assessed by electrocardiography (ECG) predicts future development of hypertension.

Design and method: Normotensive subjects who visited our hospital for a physical check-up (n = 5770; age, 52.7 ± 11.3 years) was enrolled in the present study and Sokolow-Lyon voltage and Cornell product were calculated. Left ventricular hypertrophy (LVH) was defined as a Sokolow-Lyon voltage of >3.8 mV or a Cornell product of >2440 mm × ms. After baseline examination, subjects were followed up with the endpoint being the development of hypertension.

Results: Hypertension developed in 1029 subjects (65.2 per 1,000 person-years) during the median follow-up period of 1089 days. A Kaplan-Meier analysis demonstrated a significantly higher incidence of hypertension in subjects with LVH than in those without LVH defined by either Sokolow-Lyon voltage or Cornell product (p < 0.0001 for both). The hazard ratios for incident hypertension in subjects with LVH were 1.49 [95% confidence interval, 1.16-1.90] (Sokolow-Lyon voltage, p < 0.01) and 1.34 [1.09-1.65] (Cornell product, p < 0.01) after adjustment for possible risk factors. Furthermore, in multivariable Cox hazard