GW25-e4613

Association between peri-conceptional multiple nongenetic risk factors with congenital heart disease

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Objectives: Congenital heart disease (CHD) is the most common congenital abnormality with high mortality. Although studies suggest associations between genetic risk factors and CHD, the effect of nongenetic risk factors on CHD is still unclear. This study is to evaluate the associations between the occurrence of CHD in children and peri-conceptional multiple nongenetic risk factors exposure.

Methods: In an age-matched case-control study with standardized data collection at 46 hospitals/families of a child with CHD and 574 families of a non-malformed child, filled out questionnaires on multiple nongenetic risk factors including maternal characteristics and maternal therapeutic drug exposure, housing renovation, hair perrming and dyeing and parental occupational exposure.

Results: CHD group of infants weighing less than control group (P<0.01), but the two groups of subjects in terms of age, height, gender and age are not significantly different. Educational levels of parents show a negative correlation with CHD. Therapeutic drug exposure, virus infection, home decoration, hair perrming and dyeing and parents work environment exposures during peri-conceptional are all independent risk factors for cardiovascular malformedness. Therapeutic drugs is the dangers factor (P<0.0001, OR=5.06). Compare to the single risk factor exposure, more than 2 risk factors exposures will extremely increase the CHD development (OR=16.35).

Conclusions: Multiple nongenetic risk factors may contribute to the occurrence of CHD. The chemical pollution exposures of daily life deserve more attention.

GW25-e5114

PM2.5 components in association with emergency department visits for hypertension-related cardiovascular disease

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Objectives: The aim of this study is to analyze the relationship of oxidized low density lipoprotein (ox-LDL), anti-oxLDL (ox-LDL-Ab), and other lipid metabolites with atherosclerosis (AS) in order to comprehend the immune mechanism of AS, and to provide the scientific basis for the prevention and treatment of AS.

Methods: A case-control study was conducted from February 2012 to December 2013. A total of 856 patients over 40 years of age were examined by ultrasonography. The appearance of thick carotid artery intima (intima-media thickness, IMT ≥1.0mm) and/or carotid artery having at least one measurable plaque was considered as diagnostic criteria for AS. Meanwhile, 1208 participants who were confirmed as having no atherosclerotic lesions were enrolled as control. About 5ml fasting venous blood was collected from each participant in the early morning and serum and plasma were separated according to the requirements of the subsequent tests. Glycoside oxidase method was used to measure the value of fasting blood glucose in 2 hours after intravenous blood sampling; the determination of Triglyceride (TG), total cholesterol (TC), high density lipoprotein (HDL) and low density lipoprotein (LDL) were performed by enzymo colorimetric method and ox-LDL and ox-LDL-Ab by ELISA method; Application of multiple linear stepwise regression analysis and Logistic regression analysis is appropriate to explore the association of the circulating risk factors (i.e. TG, TC, LDL, ox-LDL and ox-LDL-Ab) with AS.

Results: In this study, age, BMI, TC, TG, ox-LDL were evaluated as risk factors of atherosclerosis after control of various confounding factors. The largest contribution of risk is TG (OR=6.589, 95% CI 228.30-554) while the significant protective factor is HDL (OR=0.655, 95% CI 0.488-0.880).

Conclusions: Obesity, high serum TC, TG, ox-LDL, level are independent risk factors of atherosclerosis, but the serum antibody to oxidized low density lipoprotein (ox-LDL-Ab) has a protective effect on atherosclerosis.

GW25-e714

Plasma Apelin Levels, Blood Pressure and Cardiovascular Risk Factors in a Coastal Chinese Population

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Objectives: Apelin is a recently discovered cardiovascular bioactive peptide which is widely distributed in various parts of the body, including the endothelial cells. It plays a potent role in blood pressure regulation, which has been confirmed by many studies both in animal models and in population. Therefore, our study focused on determining the relationship of plasma apelin levels with blood pressure in a coastal Chinese population.

Methods: This cross-sectional study included a total of 1031 subjects from the coastal areas of China. One-way analysis of variance (ANOVA) and linear trend test, Pearson’s correlation analysis, as well as multivariate linear regression analysis were used to evaluate the association between plasma apelin levels and blood pressure.

Results: A total of 1301 subjects aged between 30 and 79 years (mean age, 55 ±10.9 years) and comprising of 416 males and 615 females were included in this study. Plasma apelin levels in all the population, male subjects, and female subjects were 227.42 ±80.10 pg/ml, 220.57 ±78.70 pg/ml, and 232.06 ±81.70 pg/ml, respectively. Plasma apelin levels dropped with increasing quartiles of systolic blood pressure (SBP), diastolic blood pressure (DBP), and mean arterial blood pressure (MAPB) (all P<0.001). SBP, DBP and MAPB values decreased as the apelin levels increased within the quartiles. After adjusting for age and gender, the significant differences in SBP, DBP and MAPB between the 1st and 4th quartiles of apelin level was 17.50 [for SBP], 6.25 [for DBP], 15.04 [for MAPB], all P<0.05. A significant negative correlation between SBP, DBP, as well as MABP and apelin levels was observed.
observed (correlation coefficient -0.24 [for SBP], -0.15 [for DBP], and -0.23 [for MAP]), and even after adjusting for cardiovascular confounding factors, this negative correlation remained (Standard β=-0.087 [for SBP], -3.667 [for DBP], and -7.881 [for MAP], all P<0.001).

Conclusions: A negative correlation between plasma apelin levels and blood pressure was found in this 1000 population-based epidemiological study, which indicates that apelin may have an association with blood pressure, and the apelin and its receptor may become a potential therapeutic target of anti-hypertensive treatment.

GW25-e3432
The epidemiological investigation of hypertension in original residents of affiliated islands of Dalian Changbai County
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Objectives: To investigate the prevalence and risk factors of hypertension in affiliated islands of Dalian Changbai County.

Methods: Adopting the cross-sectional study and taking the overall random sampling method, we selected the 2616 original inhabitants of Sea island, Guangulu island, Zhangzi island and its subsidiaries Talian island, Dahao island, Xiaohao island for interviewing and doing the research as follows, Designing clinical epidemiology questionnaire.Collecting the objects related to human parameters (blood pressure, height, weight, waist circumference). Counting the BMI. Recording the family history, unhealthy lifestyle (smoking, alcohol consumption, lack of exercise, and did not receive health education), previous medical history (heart disease, diabetes, etc.), history of drug use. Testing blood biochemical parameters (total cholesterol, triglycerides, low-density lipoprotein cholesterol, high density lipoprotein cholesterol, creatinine, uric acid, total bilirubin, alanine aminotransferase). Diagnostic criteria of hypertension based on the Chinese Hypertension Prevention Guide (Revised 2010). We did the survey of the hypertension prevalence, awareness and treatment rates of residents of the region and got the analysis of the hypertension risk factors of that residents. According to the presence or absence of hypertension, we divided the objects into hypertension group and normal blood pressure group, and analysis the differences between the two groups. Statistical analysis was performed using SPSS18.0 software package, the rate is calculated and compared using the chi-square test. The groups were compared using non-parametric Mann-Whitney test and using logistic regression to analysis hypertension risk factors.

Results: (1) Among the 2626 original inhabitants of islands, the hypertension prevalence rate is 53.86% (1409/2616), the awareness rate is 58.84% (829/1409), the treatment rate is 45.78% (645/1409). (2) In this crowd, the male got a higher prevalence of hypertension than the female (50.5% vs 51.6%, χ²=13.23, P<0.001). Age, BMI, waist circumference in the group of hypertension is higher than that of normal blood pressure group. The ratio of drinking, dyslipidemia, family history, abnormal renal function, abnormal liver function, merging other cardiovascular diseases in the group of hypertension is higher than the ratio of the normal blood pressure group. (3) Logistic regression analysis indicated that age, waist circumference, obesity, LDL, UA, family history of hypertension, history of coronary heart disease, hyperglycemia, glucose tolerance / history of diabetes is an independent risk factor of hypertension. Conclusions: The adult of Dalian Changbai County affiliated islands prevalence of hypertension is 53.86%, significantly higher than in other regions. Increased prevalence of hypertension associated with a number of factors, including unhealthy lifestyles have a major impact, should strengthen public education and blood pressure monitoring system for hypertension knowledge to reduce the prevalence of high blood pressure, reduce the incidence of complications of hypertension.

GW25-e3495
Influence of cigarette smoking on burden and characteristic of coronary artery plaques in Chinese men
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Objectives: To analyse the effects of different current smoking status on the burden and characteristic of coronary artery plaques in Chinese men.

Methods: 1920 individuals were stratified into three groups (never, current, former) according to their smoking status. The association of different smoking status with the coronary artery plaques were assessed, the univariable and multivariable logistic regression assess the association current and former smoker with coronary artery plaques.

Results: The prevalences of any plaques, significant stenosis and CACS ≥10 were the highest in the current smoker (all P<0.05). The proportion of calcified plaques was the lowest in current smoker (both P<0.01). The percent of calcified plaques was significant lower and non-calcified plaques was significant higher in lower pack-years group (both P<0.05). The higher pack-years group had significant higher percent of any plaques, significant stenosis, ≥2MM vessels disease and CACS:10 than lower pack-years group (all P<0.05). The current smoker with higher pack-years was the stronger risk factor for significant stenosis, CACS ≥10, non-calcified and mix plaque (all P<0.05). Conclusions: The current smokers have the greatest coronary artery burden and highest percent of non-calcified plaques; the current smokers with higher pack-years was the strongest predictor for coronary artery burden, non-calcified and mixed plaques, but not never and former smokers.

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