PREVENTION OF CARDIOVASCULAR DISEASE

GW26-e5438
Cystatin C- Versus Creatinine-Based Definition of Renal Dysfunction for Predicting Poor Coronary Collateralization in Type 2 Diabetic Patients with Stable Coronary Artery Disease
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OBJECTIVES Renal dysfunction represents a risk factor for poor coronary collateral growth. We investigated whether glomerular filtration rate (GFR) estimated with cystatin C-based equation (GFRcys) is superior to that with creatinine-based formula (GFRcr) for evaluating coronary collateralization in type 2 diabetic patients with stable coronary artery disease.

METHODS GFR was estimated with creatinine- and cystatin C-based equations in 302 diabetic and 127 non-diabetic patients with stable coronary artery disease. The degree of collaterals supplying the distal aspect of a total occlusion from the contra-lateral vessel was graded as poor (Rentrop score of 0 or 1) or good collateralization (Rentrop score of 2 or 3).

RESULTS In diabetic patients, GFRcys correlated more closely with Rentrop score than GFRcr (Spearman’s r = 0.44 vs. Spearman’s r = 0.30, P = 0.047), and area under the curve of GFRcys was larger compared with that of GFRcr (0.78 vs. 0.68, P = 0.001) for predicting the presence of poor collateralization, along with a net reclassification improvement of 15.0% (P = 0.025). After adjusting for possible confounding variables, a GFR < 90 mL/min/1.73m2 estimated with cystatin C-based equation was more independently associated with poor collateralization (OR: 6.16). The significance and presence of collaterals were graded according to the Rentrop scoring system.

CONCLUSIONS Cystatin C-based definition of renal dysfunction indicates a potential better clinical utility than creatinine-based formula for predicting poor coronary collaterals in type 2 diabetic patients with stable coronary artery disease.

GW26-e1589
Effect of Prenatal Hypoxia on Blood Pressure, Body Weight, Viscera Weight and Myocardial Fibre in In Rat Offspring
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OBJECTIVES Prenatal chronic hypoxia is related to adulthood cardiovascular disease. It remains unclear how prenatal chronic hypoxia and the period of hypoxia affect the growth of cardiovascular system. This article want to study in different periods of chronic hypoxia during pregnancy on the blood pressure, heart rate, body weight, viscosity, kidney weight of offspring at 3 and 6 months of age (all P < 0.05). Male rat offsprings in mid-pregnancy hypoxia group increased most obvious. No obvious difference heart rate among each group (P > 0.05). Hypertrophic myocardial cells in rat offspring at 6 months, especially in the mid-pregnancy hypoxia group.

CONCLUSIONS Prenatal chronic hypoxia can cause offspring rats elevated blood pressure, low birth weight and organ disproportionately grows. Male offspring rats in the mid-pregnancy and the whole pregnancy hypoxia group change most obvious, it hint that obvious change of internal environment in the key time when fetal rats cardiovascular system to develop might cause more critical influence in offspring rats cardiovascular growth, especially in male offspring.

GW26-e5439
Increased serum level of soluble VEGF receptor-1 is associated with low coronary collateralization in patients with stable coronary artery disease
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OBJECTIVES The present study investigated whether serum levels of soluble vascular endothelial growth factor receptor (sVEGFR)-1, -2 and -3 are related to low coronary collateralization in patients with stable coronary artery disease.

METHODS Serum levels of sVEGFR-1, -2, -3, VEGF and high-sensitivity C-reactive protein (hsCRP) were determined in 403 consecutive patients with angiographic total or subtotal occlusion of at least one major coronary artery. The significance and presence of collaterals were graded according to the Rentrop scoring system.

RESULTS Low (Rentrop score of 0 or 1) and high (Rentrop score of 2 or 3) coronary collateralization occurred in 161 and 242 patients, respectively. Serum levels of sVEGFR-1, -2 and hsCRP were significantly elevated, in contrast, VEGF level was remarkably decreased in patients with low collateralization than in those with high collateralization (all P < 0.05), but sVEGFR-3 was similar. The difference of sVEGFR-1 and VEGF level was consistently detected between low and high collateralization for both type 2 diabetic and non-diabetic patients (for all comparison, P < 0.05), with these two levels being inversely correlated with each other (Pearson’s r = -0.48, P < 0.001). Multivariable regression analysis revealed that diabetes, dyslipidemia before statin medication, decreased VEGF and sVEGFR-1 were independently associated with low coronary collateralization. Addition of sVEGFR-1 significantly improved C statistic (P < 0.001).

CONCLUSIONS Increased serum sVEGFR-1 level is associated with low coronary collateralization in patients with stable coronary artery disease. Type 2 diabetes mellitus is a predominant factor affecting collateral growth in these patients.