中文題目：生長分化因子 15 與代謝症候群相關
英文題目：Growth Differentiation Factor 15 is associated with Metabolic Syndrome
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Background: Growth Differentiation Factor 15 (GDF-15) is a superfamily of transforming growth factor-beta with anti-inflammatory properties in response to stress, which has been found to be associated with aging, obesity, diabetes mellitus and cardiovascular disease. Metabolic syndrome (MS) is a cluster of cardiovascular risk factors associated with insulin resistance and obesity. However, the role of GDF15 in MS remain uncertain. Here we investigate the association between GDF-15 and MS.

Methods: 193 MS and 127 non-MS subjects, aged over 30 yr, were enrolled in the study. Participants were defined as having MS if they had three or more of the following five components: waist circumference (WC) ≥80 cm in women and ≥ 90 in men; fasting blood glucose(FBG) ≥100 mg/dl or taking hypoglycemic medicine; systolic blood pressure(SBP) ≥140 mmHg and/or diastolic blood pressure (DBP)≥90 mmHg or taking antihypertension medicine; triglycerides (TG)≥150 mg/dl; high-density lipoprotein (HDL) cholesterol less than 40mg/dl in men and less than 50 mg/dl in women. Plasm GDF-15 levels were measure using ELISA kit. The level of GDF-15 was logarithmically transformed to improve normality prior to analysis. Statistical analyses were performed by SPSS software with Student's t-test and Pearson's chi-squared test. A two-sided $p < 0.05$ was considered to be statistically significant.

Results: The MS group had significantly higher body mass index (BMI) ($p= 0.001$), WC ($p<0.001$) and HOMA-IR ($p<0.001$); higher serum GDF-15 ($p<0.001$), creatinine ($p = 0.001$), FBG ($p=0.015$), HbA1c ($p<0.001$), TG ($p=0.029$) and urine albumin/creatinine ratio ($p = <0.001$); lower eGFR($p = 0.003$) and HDL-cholesterol ($p<0.001$). Compared to non-MS subjects, the MS group had significantly higher prevalence of chronic kidney disease ($p <0.001$), abdominal obesity ($p <0.001$), impaired fasting glucose ($p <0.001$), hypertension ($p <0.001$) and dyslipidemia ($p <0.001$).

Conclusions: In current study, we suggested that elevation of circulating GDF-15 is associated with MS, which may be an early predictor of MS**.**