

LIVER FUNCTION AND THE METABOLIC SYNDROME AMONG CHINESE POPULATION

Yuan-Horng Yan, MD, MSc^{1,3}, Shih-Che Hua, MD³, Chieh-Hsiang Lu, MD, MSc³, Tzu-Ling Chen, MSc², Hsin-Yi Wang, MSc², Tsun-Jen Cheng, MD, ScD¹

¹ Institute of Occupational Medicine and Industrial Hygiene, College of Public Health, National Taiwan University, Taipei, Taiwan, ² Bureau of Health Promotion, Department of Health, R.O.C. (Taiwan), ³ Chia-Yi Christian Hospital, Chiayi, Taiwan

BACKGROUND: Elevation of aspartate and alanine aminotransferases (AST and ALT, respectively), markers of liver dysfunction, are considered as part of the metabolic syndrome and related diseases. However, the association between liver function and the metabolic syndrome in Chinese population remains incompletely understood. The objective of this study was to investigate how these two were associated in a nationally representative sample of Chinese population.

METHODS: We performed a cross-sectional analysis of 2,864 males and 3,166 females aged 20 to 80 years using data from the Taiwanese Survey on Prevalence of Hyperglycemia, Hyperlipidemia and Hypertension (TwSHHH), 2002. The prevalence of metabolic syndrome was estimated using the definitions of the modified Adult Treatment Panel III (ATP III) for Asians required meeting at least three of the following component risk factors: (1) waist circumference > 90 cm for men and > 80 cm for women; (2) TG \geq 150 mg/dL; (3) HDL-C < 40 mg/dL for men and < 50 mg/dL for women; (4) systolic BP \geq 130 mmHg or diastolic BP \geq 85 mmHg; (5) FPG \geq 110 mg/dL.

RESULTS: Serum concentration of AST in the metabolic syndrome group and the non metabolic syndrome group were 20.7 \pm 16.3 and 26.0 \pm 25.3 mg/dL, respectively (P<0.001). Serum concentration of ALT in the metabolic syndrome group and the non metabolic syndrome group were 20.2 \pm 16.3 and 25.4 \pm 17.3 mg/dL, respectively (P<0.001). The multivariate-adjusted odds ratios [95% confidence interval (CI)] of elevated serum concentration of AST and ALT in those with the metabolic syndrome compared to those without the metabolic syndrome were 1.69 (1.11, 2.57, P=0.01) and 1.66 (1.11, 2.48, P=0.01), respectively.

CONCLUSIONS: Among Chinese population, serum concentrations of AST and ALT are strongly associated with the prevalence of the metabolic syndrome.

KEYWORDS: Liver function, Metabolic syndrome, Chinese population