According to our data,¹ the mean serum alanine aminotransferase (ALT) and γ-glutamyltransferase (GGT) levels both increased with increasing levels of serum uric acid (SUA). Our data also revealed significant correlations between SUA and ALT (r=0.34, P<0.0001) as well as SUA and GGT (r=0.30, P<0.001) in healthy individuals (n=27,512). Adjusting for SUA level attenuated the association between ALT and metabolic syndrome, but it remained strongly significant (odds ratio (OR) 4.04, 95% confidence interval (CI) 3.59–4.55 for men; OR 3.52, 95%CI 2.71–4.57 for women). In addition, we found a significant association between GGT and metabolic syndrome in our evaluation. Several previous studies have associated GGT with vascular risk (as represented by metabolic syndrome).²–⁴ Our data confirmed the findings of previous studies demonstrating a relationship between GGT and metabolic syndrome.

Non-alcoholic fatty liver disease (NAFLD) induces asymptomatic elevation of liver enzymes, including ALT, aspartate aminotransferase, and GGT.⁵ Among these liver enzymes, ALT is the most closely related to liver fat accumulation,⁶ and ALT has consequently been used as a marker for NAFLD. Among the total study population, we conducted a subgroup analysis of the non-alcoholic population, who drank less than 20 g alcohol/day. ALT and GGT were also profoundly associated with metabolic syndrome.

However, as a result of its cross-sectional design, this study cannot definitively draw any conclusions as to the direction of causality in the demonstrated relationship between liver markers and vascular risk. The findings of this study should be cross-validated to different populations; hence, further large-scale prospective studies will be necessary.

References


Ji Eun Yun, PhD
Heejin Kimm, MD, PhD
Sun Ha Jee, PhD
Institute for Health Promotion & Department of Epidemiology and Health Promotion, Graduate School of Public Health, Yonsei University, Seoul, Korea
Sang Yeun Kim, BSc
Sun Ju Lee, BSc
Institute for Health Promotion, Graduate School of Public Health, Yonsei University & Metabolic Syndrome Research Initiatives, Seoul, Korea
Hee-Cheol Kang, MD, PhD
Department of Family Medicine, Yonsei University College of Medicine, Seoul, Korea

(Released online June 15, 2011)