

## Editorial



# Serum Uric Acid and Metabolic Syndrome: a Retrospective Cohort Study

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Metabolic syndrome is characterized by a large waist size, high triglyceride level, low HDL cholesterol level, increased blood pressure, and/or elevated fasting blood sugar.<sup>1</sup> Hyperuricemia is known to cause various inflammatory diseases via uric acid deposition in the joints but is also recognized as one of the major diseases contributing to metabolic syndrome. Moreover, hyperuricemia is a risk factor for cardiovascular disease and therefore requires long-term management.<sup>2</sup> Several studies of Koreans have found that higher levels of uric acid are correlated with obesity and increased blood pressure and contribute to dyslipidemia.<sup>2,3</sup> Increased levels of uric acid are therefore significantly and independently correlated with several factors associated with metabolic syndrome.

Physiologically, metabolic syndrome involves insulin resistance, which reduces uric acid excretion and increases uric acid reabsorption in the kidneys, ultimately resulting in elevated blood uric acid levels.<sup>4</sup> In addition, a high uric acid concentration raises blood pressure and triglyceride levels, lowers high-density cholesterol, and causes repeated exacerbation of metabolic syndrome. Although there is already strong evidence for the correlation between uric acid and metabolic syndrome, it has not been proven that blood uric acid levels can independently form a causal relationship with metabolic syndrome.

Despite these limitations, however, there has been considerable recent interest in research utilizing the Korea National Health and Nutrition Examination Survey VII, 2016.<sup>5</sup> Studies on the relationship between uric acid concentration and metabolic syndrome are compelling. Compared to previous studies, this study has demonstrated an even stronger correlation between blood uric acid levels and metabolic syndrome in Koreans. Additionally, this study has indicated an optimal cutoff value for uric acid concentration, suggesting that uric acid levels could potentially be included as a component of metabolic syndrome assessments in clinical settings in the future.<sup>5</sup>

However, even though high blood uric acid levels are often associated with metabolic syndrome, not all studies report that each aspect of metabolic syndrome is related to blood uric acid concentration.<sup>6</sup> Because there is a lack of data on these relationships, further research is required to identify how high the uric acid concentration has to be to cause metabolic syndrome. In addition, it is essential to study how much uric acid concentration

must be lowered to independently reduce the risk of metabolic syndrome. It is a basic limitation of large-scale retrospective cohort studies that only correlations can be identified and causal relationships cannot be proven. Therefore, it is necessary to examine the causal relationship between uric acid concentration and each of the independent factors of metabolic syndrome, including blood glucose, blood pressure, large waist size, and dyslipidemia.

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