Reply to "Association of Serum Uric Acid Concentration With Metabolic Risk Factors in Patients With Type 2 Diabetes"

We thank Dr Yanai and Dr Hirowatari for their interest in our article.

The role of uric acid (UA) in human disease is still controversial. Most studies have found a significant association between serum UA levels and cardiovascular outcomes, particularly in women, but this link was not always independent of other cardiovascular risk factors. Moreover, UA seems to be protective against some diseases (eg, in the neurological field) for its antioxidant activity,[1] but exerts a pro-oxidant action within the adipocytes[2] and in conditions of local ischemia.[3]

Taking into account these polymorphic actions of UA, the discrepancies between the results observed by Yanai and Hirowatari and our own findings are not surprising. There are clear differences between their diabetic population sample and patients who participated in our study.[4] First of all, age was in a wider range than in our population, which comprised only elderly patients. Second, body mass index was normal or only slightly increased, as one would expect in a Japanese population, while we mostly recruited obese patients. This is a meaningful point, because a positive association between body mass and serum UA levels has been widely described, not only with fatty mass but also with lean mass.[5]

It is interesting that, even in such a different setting, Yanai and Hirowatari confirmed, in the context of the diabetic disease, our observation of a sex-specific pattern of association between serum UA and clinical/metabolic parameters. However, in a subanalysis of the patients with type 2 diabetes included in our study, we did not find any favorable association between UA and other features of cardiovascular risk, as Yanai and Hirowatari did in diabetic men. In fact, in our 23 diabetic male participants, serum UA was inversely correlated with high-density lipoprotein cholesterol (r=−0.460, P<.03) and directly correlated with serum triglyceride (r=0.433, P<.04) and triglyceride/high-density lipoprotein cholesterol ratio (r=0.485, P<.02). Even the 86 diabetic women exhibited a different picture from their Japanese counterparts: UA was positively correlated with body mass index (r=0.290) and waist circumference (r=0.338, P<.003 for both tests). Moreover, an inverse correlation was present between UA and estimated glomerular filtration rate in women (r=−0.303, P<.007).

Hence, in our subsample of diabetic patients, serum UA was associated with other features of the metabolic syndrome and with signs of target organ damage in a similar way to that observed in the whole population of elderly, mostly obese, Neapolitan patients. However, on the basis of the different actions of UA described in the literature, it is theoretically conceivable that in select cases, as in the lean, male diabetics observed by Yanai and Hirowatari, UA might exert a protective role.

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