Letter to the Editor

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Uric Acid for Acute Stroke: Fantasy or Reality?

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Dear Editor,

Stroke is the second most common cause of death, as well as the fourth leading cause of lost productivity and a major cause of disability worldwide [1]. Hence, stroke-related morbidity and mortality are one of the main public health concerns as the treatment options for patients with acute stroke are limited. Although intravenous alteplase (recombinant tissue plasminogen activator) administered within 4.5 h after the onset of symptoms is the preferred treatment for ischemic stroke in Europe [2], the condition of many patients does not improve significantly after receiving this therapy [3]. Therefore, the identification of new therapeutic approaches and treatments to ameliorate the long-term outcomes of stroke patients is required.

Serum uric acid (SUA) is a final enzymatic product of purine metabolism [4]. There is a well-recognized epidemiological link between elevated SUA levels and the increased risk of stroke morbidity and mortality [5]. On the other hand, animal models of acute ischemic stroke have shown that SUA may be neuroprotective [6], but the evidence for this is limited. In the past several decades, a number of clinical studies have assessed the association between SUA and stroke outcome [7, 8]. However, the role of SUA in short- and long-term outcomes is still controversial. A possible explanation for the varying effects of SUA in the acute phase of ischemic stroke could be that different outcome measures, study size and population are used in the different studies, thereby hampering the comparison of the findings.

Recently, Chamorro et al. [9] reported that the addition of SUA to thrombolytic therapy did not increase the proportion of patients who achieved an excellent outcome (according to the modified Rankin scale score at 90 days) after stroke compared to patients receiving placebo. This recent controversial report challenges whether or not SUA is indeed effective for stroke. A consensus recommendation has been made that the preclinical neuroprotectant should show efficacy in at least 2 species and in 2 laboratories using different models [10]. It is therefore imperative to explore the attendant concerns. First of all, experimental studies that assess SUA in animal models of ischemic stroke should preferably have a longer time window. Furthermore, the assessment of infarct volume and neurological scores should be masked. It is necessary to examine higher-quality prospective evidence on the relationship between SUA and the short- and long-term outcomes of stroke.

In summary, certain recommendations should be considered for the efficacy of SUA in the treatment of acute ischemic stroke. Large prospective studies conducted with the use of standardized outcome measures as well as the timing of SUA sampling are necessary to assess the association of SUA and stroke outcome.

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