Response to Letter Regarding Article, “Admission Hyperglycemia and Clinical Outcome in Cerebral Venous Thrombosis”

We thank Choudhary et al for their interest in our study on hyperglycemia in patients with cerebral venous thrombosis (CVT).2

Regarding their first remark: we feel that it is unlikely that inclusion of patients with unrecognized diabetes mellitus biased the results. First, CVT mostly affects young and middle-aged adults, as is apparent from the mean age in the study (40 years for the entire cohort). At this age, diabetes mellitus is not a common condition among subjects with a European-Caucasian descent, which was the most common ethnicity of our patients. Diabetes mellitus is also not a risk for CVT, which makes it unlikely that the frequency of diabetes mellitus is higher in our study. Second, we carefully screened the medical history of all patients to exclude those with known diabetes mellitus. This led to the exclusion of 12 patients. Third, >95% of patients underwent clinical follow-up. The median duration of follow-up was 6 months after diagnosis of CVT, and it is likely that patients with unrecognized diabetes mellitus at the time of diagnosis would have been identified during clinic visits. Instead, as mentioned in the article, only 2 such patients (0.7% of patients who underwent follow-up) had been diagnosed with diabetes mellitus after discharge.

In total, 24 patients with a previous thrombotic event were included in the study. Of these, only 4 used anticoagulation at the time of CVT diagnosis, one of whom had hyperglycemia. Given that this constitutes a small proportion of included patients (1%), the influence of this potential confounder on the results is negligible.

We felt that the most appropriate way to analyze an association between hyperglycemia and poor outcome in our study was to use death or dependency (modified Rankin Scale score 3–6) as a dependent variable. Because the unadjusted analysis showed a marked difference in mortality between the 2 groups (21.2% versus 5.0%), we also determined the effect on mortality in a separate analysis. If we run the multivariate analysis excluding patients who died (ie, modified Rankin Scale score 0–2 versus 3–5), the adjusted odds ratio for poor outcome is 2.2 (95% confidence interval 0.69–6.81). The fact that the association between hyperglycemia and poor outcome is no longer statistically significant in this analysis is most likely caused by the relative small sample size.

Disclosures

Dr Coutinho received a lecturing fee from Boehringer Ingelheim, which was fully donated to the Stichting Klinische Neurologie, a local foundation that supports research in the field of neurological disorders. Dr Zuurbier reports no conflicts.

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