Response to Letter by Coutinho et al
Regarding Article, “Mortality of Cerebral Venous–Sinus Thrombosis in a Large National Sample”

Response:
We appreciate the valuable comments made by Coutinho et al and colleagues.1 Because of space limitations, we omitted detailed gender-associated mortality rates in cerebral venous sinus thrombosis (CVST) in our published article.2 Unlike the international study on cerebral vein and dural sinus thrombosis,3 we found no association between gender and mortality rates. In our cohort, 92 women (4.30%) and 61 men (4.53%) died (OR, 0.94; 95% CI, 0.67–1.31). Of note, gender was also included in our multivariate model but was not statistically significant. In addition, among all of those who died, stratified analysis by age in decades and gender showed higher mortality rates among those in the 5th, 6th, and 7th decades of life (17.65%, 16.34%, and 16.99%, respectively) with no difference between genders; however, another peak of high mortality was noted among men in their first decade of life (14.75%). Other outcomes failed to reach statistical significance including acute ischemic stroke (OR, 1.27; 95% CI, 0.96–1.69) and intracerebral hemorrhage (OR, 1.33; 95% CI, 1.00–1.75). Our study was cross-sectional and lacks information on follow-up.

Regarding the disproportions between the pyogenic and nonpyogenic CVST, we agree that the finding is unexpected. Few reasons suggest a coding error as the cause of the overrepresentation of the pyogenic over the nonpyogenic subtype of CVST. First, the rates of underlying pathological processes in both subtypes were essentially similar (see published figure).2 In support of the coding error hypothesis, we found 19 patients with central nervous system infection among the nonpyogenic group that we decided to incorporate in the pyogenic group. Second, although the coding system of disease is a sophisticated process with coders, whether physicians or nonphysicians, coding error is always probable. For instance, the International Classification of Diseases, 9th Revision, Clinical Modification codes to identify pyogenic and nonpyogenic were found to be of limited accuracy in children with CVST4; however, this observation was not validated in adults. On the opposite side of this argument, the finding in favor of the pyogenic over nonpyogenic dichotomy is the lopsided age in both groups. Patients with pyogenic CVST were younger by a decade (pyogenic: median age 37 years, lower quartile 22 versus the nonpyogenic: median 47 years, lower quartile 31).2 In addition, younger age groups, especially children, have a higher incidence of head and neck infections that may reach up to 29%.5 In agreement with Heller et al, we believe the combination of a prothrombotic state with the underlying clinical condition is crucial for developing CVST.6 Despite the coding limitations, it should be kept in mind that the major finding of our article on predictors of poor outcome is independent from the International Classification of Diseases, 9th Revision, Clinical Modification dichotomy of CVST.

Disclosures
None.

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Stroke. 2012;43:e23; originally published online January 12, 2012;
doi: 10.1161/STROKEAHA.111.643023

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