LETTER TO THE EDITOR

To The Editor

Cerebral Venous Sinus Thrombosis in Mid-South USA

Keywords: CVST, Mid-south USA, Peripartum, Stroke

We read with interest the article titled "Improvement in the Prognosis of Cerebral Venous Sinus Thrombosis over a 22-Year Period" by Anderson D, *et al.*[1] We congratulate the authors on an excellent and detailed retrospective review of cerebral venous sinus thrombosis (CVST) cases over two decades.

We are part of a busy academic Neuro ICU in mid-south USA where we see over 2500 admissions per year. Even with a large geographic catchment area, CVST remains a relatively infrequent diagnosis. It was interesting for us to compare the epidemiology of patients presenting to our center to ones reported in other large case series including the ISCVT series and University of Alberta series.[1,2]

Following Vanderbilt University Internal Review Board approval, we conducted a retrospective chart review of patients admitted to Vanderbilt University Medical Center with a diagnosis of cerebral venous thrombosis admitted to the Neuro ICU between 2009 and 2014. Our small ICU cohort had 19 cases. Fifteen of these 19 cases were transferred from outside facilities. Many of these patients had precedent symptoms for at least 24 h prior to admission. In 11 of these cases, imaging was available at the time of admission that showed CVST. Five of 19 were directly admitted as an ICU-to-ICU transfer.

The cohort was predominantly composed of younger Caucasian women (82.4%) with a mean age 32.4 ± 18.1 years. This distribution did not follow the ethnicity maps of the geographic catchment area (77% Caucasian and 17% African American population).[3] The mean BMI was 32.5, with a mean body weight 90 ± 19.68 kg. What stands out in our patient population is the proportion of patients in the peripartum period (35.3%). The prevalence of other known risk factors including oral contraceptive use, infection, trauma/mechanical reasons for CVST was lower than in other reported case series including the university of Alberta series and ISCVT series. All 17 patients survived the acute illness in our series.

From an intensive care perspective, the workup of a hypercoagulable state in the acute phase of the illness is complicated by validity and reliability of assays while on systemic anticoagulation (especially Proteins C and S, and Antithrombin activity).[4] It is well established that inherited deficiencies of Protein C, Protein S, Antithrombin, Factor V Leiden (FVL), and Prothrombin gene mutation 2021A predispose to a hypercoagulable state. FVL variants are more prevalent in Caucasian populations and maybe responsible for cases of resistance to activated Protein C. A large epidemiologic study that evaluated over 11,000 patients attributed a moderately increased thrombogenic risk to patients with *FVL* and Prothrombin gene variant *PT20210A*. However, this risk was not attributable to the C677T *MTHFR* (methylene tetrahydrofolate reductase gene *variations linked to hyperhomocysteinemia*).[5] In fact, lowering homocysteine levels using vitamin B6, vitamin B12, or folate has not been consistently proven to reduce thrombogenic risk. Work up of a hypercoagulable state in the setting of acute illness (including new ischemic event) continues to have multiple confounders and is not always straightforward. From a practical perspective, the common management strategy centers on systemic anticoagulation and reduction in clot burden.

CVST should be considered early in the differential diagnosis of severe headaches and mental status changes in the peripartum patient. In our series, the mid-south USA patient at risk for CVST tends to be a young Caucasian female with Class I obesity in the peripartum period. This incidence of peripartum CVST in our cohort of patients was higher than reported in the ISCVT series and University of Alberta series.

Conflicts of Interest

None.

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