Cerebral venous thrombosis due to homozygous factor V Leiden mutation

Sir,

A 26 year old lady presented with headache, generalized tonic-clonic seizures, right hemiparesis and altered mental status of one day duration. Ten days earlier, she had delivered a live term baby girl by normal vaginal delivery. This was her fourth pregnancy, first and third pregnancies were uneventful. Eight years before this admission, during the postpartum period of second pregnancy she developed pelvic vein thrombophlebitis and bilateral deep vein thrombosis and was treated with anticoagulants, which later were discontinued. At this admission she was afebrile and Glascow coma scale score was 9/15 (E2V2M5). Ocular fundi examination revealed bilateral papilledema and she had right hemiparesis. Contrast computerised tomography (CT) scan of the brain showed filling defects in the posterior part of superior sagittal sinus and right transverse sinus and bilateral parietal infarcts, left more than right suggestive of cerebral venous thrombosis (CSVT). Complete blood picture (except packed blood volume 25.7%), blood biochemistry, and viral markers were normal. She was treated with antiedema measures, anti-epileptic drugs, intravenous unfractionated heparin and supportive measures. Her neurological status worsened with anisocoria requiring ventilation. A repeat imaging showed a large fresh right frontal infarct and severe cerebral edema. She deteriorated further and had a cardiac arrest.

A thrombotic workup revealed normal prothrombin, activated partial thromboplastin and thrombin times Factor VIII and fibrinogen levels, Antithrombin III, Protein C functional assay, Protein S (total and free). Ham's and Sucrose lysis test were negative. Activated Protein C resistance ratio was 1.31(significant if < 2). Diluted Russel's viper venom test for lupus anticoagulant was negative. Genetic markers for thrombosis using polymerase chain reaction showed homozygosity to Factor V Leiden (FVL) mutation. Methylene tetra-hydro-folate reductase (MTHFR) Polymorphism and Prothrombin Gene Polymorphism were not detected. She had activated Protein C resistance due to homozygosity to Factor V Leiden mutation.

In 1994 Bertina[1] discovered an autosomal dominant mutation in the Factor V gene that makes activated Factor V resistant to activated Protein C. This mutation occurs in 28% of Caucasians but is rare in South East Asia.[2] Homozygotes for FVL mutation are prone to thrombosis especially in presence of prothrombotic risk factors.[3] This mutation presents during pregnancy with thrombosis of ilieofemoral veins and rarely CSVT.[4,5] The complex interactions between genetic factors like MTHFR C677T variant, biochemical markers like homocysteine and cerebral circulatory disorders, indicate a mitochondrial hypothesis.[6] This is the first report of CSVT due to activated Protein C resistance caused by homozygous Factor V Leiden mutation from India.

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