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Congenital Hypofibrinogenemia is a Potential Risk Factor for Ischemic Stroke

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Fibrinogen plays an important role in hemostasis. Although acquired fibrinogen deficiency is relatively common, congenital hypofibrinogenemia is rare.[1,2] This rarity may lead to its underdiagnosis, particularly in cases of mild congenital hypofibrinogenemia. Bleeding is the hallmark manifestation in these patients.[1-3] However, we propose that ischemic events can also occur in this population.

An otherwise healthy 42 year-old male presented to the emergency department with acute onset of altered consciousness and gait disturbance. Although his vitals were within normal limits, a neurological examination revealed aphasia, right-sided homonymous hemianopia, paresis (motor grade 3/5), left-sided ataxia, and dysmetria. Magnetic resonance imaging revealed infarctions in the left occipital lobe, right pons, and bilateral cerebellar hemisphere. Cranial and cervical computed tomography angiography did not reveal any pathological findings. Furthermore, the electrocardiogram and echocardiogram yielded normal results. Transesophageal echocardiography could not be performed due to the patient's intolerance. Additionally, contrast-enhanced cardiac computed tomography did not reveal any thrombi. Laboratory studies revealed only hypofibrinogenemia (0.65 g/l; normal: 1.7-4.2 g/l). The patient's previous fibrinogen levels were also <1 g/l. The patient had no history of alcohol or tobacco use. Tests for antiphospholipid antibodies, homocysteine, genetic thrombophilia, and vasculitis yielded normal results. In the absence of a history of arrhythmia or a thrombovascular etiology that could explain the patient's stroke etiology, we attributed the bilateral infarctions to hypofibrinogenemia. The patient was administered enoxaparin (1 mg/kg) subcutaneously every 12 hours. After initial treatment in the intensive care unit (ICU), the patient was transferred to the rehabilitation department with an intact consciousness, aphasia, right-sided paresis, and bilateral ataxia.

Congenital hypofibrinogenemia develops due to heterozygous mutations in one of the three fibrinogen chains, leading to bleeding and thromboembolic complications in patients.[4-6] Thrombotic events are reportedly caused by the increase in vivo platelet aggregation due to the body's inability to neutralize thrombin in the absence of fibrin.[4] Although our patient did not report a history of thrombotic events, his family reported prolonged bleeding following procedures such as injections and tooth extractions. Because the etiology of the patient's long-standing hypofibrinogenemia had not been previously evaluated, we referred the patient and his family to the department of molecular biology and genetics.

Hypofibrinogenemia can be observed in patients with acute stroke following thrombolytic therapy, and fibrinogen replacement is generally considered clinically safe.[7] Furthermore, spontaneous bleeding may be observed in patients with fibrinogen values below 0.5 g/l.[8] Our patient was not administered thrombolytic therapy, and his fibrinogen levels ranged between 0.6 and 1 g/l during his ICU stay. Thus, no bleeding was observed, and fibrinogen replacement was not administered due to the potential risk of thrombosis.

In conclusion, in young patients presenting with ischemic stroke, congenital hypofibrinogenemia should be considered as an etiology. Furthermore, the fibrinogen levels of these patients should be carefully monitored.

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