A Case of Thrombocytopenia Associated With Valproic Acid Treatment

To the Editor: Thrombocytopenia is a condition in which the blood has a lower than the normal platelet count. Thrombocytopenia is derived from the old term *thrombocytes*, ie, cells responsible for blood clotting or thrombus.[1] Bone marrow produces platelets along with other kinds of blood cells. Normal platelet count is between 150,000 and 450,000/μL of blood. Even though a platelet count of less than 150,000/μL of blood is lower than normal, risk of mild bleeding occurs only when the platelet count falls below 50,000/μL of blood. The risk of serious bleeding occurs when the level is below 20,000/μL of blood.[2]

Thrombocytopenia can occur when the bone marrow fails to produce the normal levels of platelets in conditions such as certain cancers that affect stem cells, aplastic anemia, exposure to toxic chemicals, viruses, and excessive consumption of alcohol. Thrombocytopenia can also occur when the body destroys its own platelets after the bone marrow makes enough platelets, eg, in conditions such as thrombotic thrombocytopenic purpura, idiopathic thrombocytopenic purpura, and drug-induced thrombocytopenia. Drug-induced thrombocytopenia can be caused by certain drugs such as vancomycin, phenytoin, sulfa-containing antibiotics, quinine, and rifampin.[2] These drugs cause serious reaction with platelets in sensitive people by producing drug-dependent antibodies that destroy the platelets and thus lower the platelet count. Platelet count can be normalized by stopping the drug, and the identification of the responsible drug is important to prevent reexposure.[1]

Thrombocytopenia can cause external bleeding in the form of petechiae, purpura on skin, bleeding from nose and mouth, or internal bleeding in any part of the body leading to a medical emergency. Thrombocytopenia can be easily identified by a routine blood test such as a complete blood cell (CBC) count, which can be followed up with other tests as needed.[2] Mild-to-moderate thrombocytopenia needs no treatment most of the time. Severe thrombocytopenia can be treated by steroids, blood or platelet transfusions, and splenectomy if other treatments fail.[2]

Case report. Mr A, a 23-year-old Hispanic man, presented with a diagnosis of bipolar disorder (*DSM-IV* criteria). His weight was 178 lb. He was started on treatment with valproic acid 500 mg twice daily. Initial laboratory values were within normal limits, including a baseline platelet level of 348,000/μL. After 1 week of treatment, his platelets were checked again; his platelet count had decreased to 38,000/μL. The patient has no other risk factors for thrombocytopenia or any previous history. Valproic acid was immediately stopped, and another CBC count was obtained 1 week later; his platelet level had increased to 208,000/μL. Platelet level increased again to 300,000/μL 3 weeks after cessation of valproic acid treatment.

This case, like some other cases,[3,4] shows that valproic acid treatment is associated with thrombocytopenia. The case demonstrates thrombocytopenia induced by treatment with valproic acid in a relatively young patient after only a week of treatment. The risk of thrombocytopenia caused by valproic acid is 5%, and the risk increases with the age of the patient and with the level of valproic acid in the blood.[4–6] In this case, the patient was young and had received a standard dose of valproic acid for a week when his platelet count dropped to 38,000/μL, which alerted us to check the CBC count regularly in all patients treated with valproic acid. The risks caused by thrombocytopenia can be easily prevented by promptly stopping the drug and monitoring the patient every week until the platelet count normalizes.[7]

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