An Atypical Presentation of Mevalonate Kinase Deficiency in Response to Colchicine Treatment

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Background
✓ Mevalonate kinase deficiency (MKD) is a periodic fever syndrome. Nonsteroidal anti-inflammatory drugs, corticosteroids, and anakinra are commonly used in treatment. Colchicine is considered insufficient in disease control. However, considering the low side-effect profiles, colchicine may also be an option for some patients.

Case
✓ An 8-month-old Syrian girl was referred to our intensive care unit due to a coma. The patient had a fever, diarrhea, tachypnea before admission to the hospital. Her medical history was born at full term, 1500 grams, after an uneventful pregnancy within a non-consanguineous marriage. At the age of 39 days, she was admitted to the hospital with fever and treated with antibiotics due to suspected meningitis. However, no positive sign was observed in the CSF culture test.

On physical examination, her height, weight, and head circumference were below the 3rd percentile. The spleen was 5 cm, and the liver 6 cm palpable. We noted no dysmorphic appearance. Other system examinations were unremarkable.

Laboratory evaluation revealed a high white blood cell (WBC) (21,170 10⁶/L), normal hemoglobin level (10g/dL), thrombocytopenia (85,000 10⁶/L) and elevated ALT (765U/L) AST (364BU/L) and C-reactive protein (18mg/dL) levels. Metabolic acidosis (pH:7.14), HCO₃⁻:9.8mmol/L, PCCO₂:25.5mmHg and hyperlactatemia (8.95 mmol/L RR:0.45-1.45mmol/L) were detected. Creatine kinase (1535U/L) was high, and ammonia (44mmol/L) values were within the normal range. We started empirical antibiotics and antivirals, although there were no positive signs in blood, urine, or CSF cultures. Plasma amino acids, carnitine/carnitine profile, very-long-chain fatty acids panel, biotinidase activity, lysosomal diseases screening tests were within the normal range.

During clinical follow-up, persistent, recurrent episodes of fever were observed (Figure 1). The excretion of mevalonate acid in the urine was controlled four times during the febrile periods, was not detected. We performed a genetic analysis for autoinflammatory syndromes. In the MVK gene, a novel pathogenic heterozygous c.925G>C (p.Gly309Arg) variant (according to ACMG criteria) and a heterozygous predefined c.1129G>A (p.Val377Ile) mutation were revealed (Figure 2).

The patient was treated with colchicine. The patient was 25-months old at the last examination. She continued with colchicine treatment for eight months. No further fever episode related to MKD has been observed.

Conclusion
✓ It should be kept in mind that mevalonic acid excretion may not be present in the urine with mild MKD. Colchicine may be a reasonable option in mild MKD patients for a longer duration of treatment due to favorable adverse event profiles.

References
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