Hypokalemic Paralysis Following Chikungunya Fever

Sir,

Chikungunya fever is a viral disease, caused by Alphavirus, transmitted to humans by the bite of infected Aedes mosquitoes. Disease is characterized by an abrupt onset of fever, severe arthralgia, rash and other constitutional symptoms. Disease is usually self-limiting with fever lasting for 1-7 days. But sometimes disease may become morbid due to persistent joint pains, dehydration, electrolytes imbalance, hypoglycemia and neurological complications.

During the recent outbreak of Chikungunya fever in various parts of India, we came across a case of quadriplegiasis with severe hypokalemia after an acute attack of Chikungunya fever.

A 26 years male was admitted with complaints of fever and joint pains predominantly involving knee and wrist from last 3 days. On examination patient was febrile (101 F), pulse - 90 min regular, blood pressure -110/70 mm Hg and normal general physical and systemic examination. There was no joint swelling or effusion but movements of knee and wrist joint were painful. Laboratory investigations including complete haemogram, renal function test and liver function test were within normal limits. Chikungunya IgM antibody (by CTK, biotech card test) and CRP were positive. Serum Sodium - 136 meq/L, S. Potassium - 4.3 meq/L were within normal limit. Patient was treated symptomatically, improved and discharged after 2 days with mild joint pains.

Patient was readmitted after 7 days with complaints of sudden onset of weakness in all 4 limbs from last 6 hrs. There was no history of paresthesiae, trauma and diarrhea, vomiting, strenuous exercise followed by rest, intake of heavy carbohydrate diet and any drugs (diuretics) preceding the weakness. There was no history of such weakness in the past and no family history of episodic weakness. General physical examinations was normal. In CNS examination higher mental functions and cranial nerves were normal. Motor system examination showed normal muscle bulk and nutrition, hypotonia in all 4 limbs with power 1/5 in both upper limbs and 3/5 in both lower limbs with diminished deep tendon reflexes and flexor plantar response and no sensory deficit. Repeat investigations including complete hemogram, liver function tests, kidney function tests and thyroid profile (T4, T3, TSH) were within normal limits. S. Sodium was 143 meq/L whereas S. Potassium was only 1.9 meq/L. ECG showed flattening of T waves and presence of U waves. With the diagnosis of hypokalemic motor paralysis patient was treated with 40 meq KCL infusion in 5% 500 ml of dextrose drip. Patient improved remarkably within next 6 hrs with no neuro-deficit. Repeat S. Potassium was 5.4 meq/L and repeat ECG also revealed disappearance of U waves. Challenge test with heavy carbohydrates diet and strenuous exercise followed by rest, 7 days after the discharge did not produce any weakness.

Markedly low S. Potassium level (1.9 meq/L) with flaccid paralysis and complete recovery with Potassium infusion (40 meq/L) in this case confirms the diagnosis of hypokalemic paralysis. Other causes of hypokalemic paralysis are thyrotoxicosis and other conditions leading to hypokalemia such as urinary Potassium wasting syndrome (Bartter’s, Gitelman’s syndromes and acute tubular necrosis) alcohol, drugs (diuretics) and gastrointestinal losses. These were ruled out by clinical examination and relevant investigations. Familial periodic paralysis is unlikely because of following reasons :- (1) First episode of weakness. (2) Age more than 25 years. (3) Marked alteration in S. Potassium level. (4) Negative Challenge test.

Nerve conduction velocity to rule out G.B. Syndrome could not be done as patient was admitted in emergency hour. Marked hypokalemia and subsequent complete recovery with Potassium infusion also rules it out.

Hypokalemic paralysis can occur after a febrile illness. In this case, the febrile episode was Chikungunya fever about which comparatively less scientific information is available in the literature. The association, is interesting and needs to be shared.

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