

Case Report

A rare presentation of dengue fever: acute motor quadriparesis due to hypokalemia

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Received: 21 August 2014

Accepted: 5 September 2014

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ABSTRACT

Hypokalemia can lead to acute onset pure motor flaccid quadriparesis. Although there are many causes of hypokalemia but dengue is a one rare cause of them which can cause hypokalemia. Simply correction of potassium improve the weakness dramatically. We reported a case who presented to us with acute motor quadriparesis, finally diagnosed hypokalemia due to dengue.

Keywords: Hypokalemia, Dengue, Quadriparesis

INTRODUCTION

There are only a few diseases which can cause acute motor quadriparesis without bladder bowel involvement like channelopathies, some myopathies, guillain barre syndrome (GBS), botulism, poliomyelitis and myasthenia gravis. In channelopathies abnormalities of the calcium, sodium and potassium channels are known to cause intermittent weakness. Hypokalemic periodic paralysis is the most common channelopathy. The acquired causes of hypokalemia can also lead to quadriparesis. These causes of hypokalemia are due to transcellular shift, diuretics use, gastrointestinal loss (diarrhea), excess of insulin and catecholamine, diabetic ketoacidosis, some drugs, renal tubular acidosis and hyperthyroidism.¹ In dengue, around 14-28% patients develop hypokalemia but only few patients develop quadriparesis.² Because quadriparesis is an uncommon presentation of dengue, so we decided to publish this case report.

CASE REPORT

A 28 year old male presented in our emergency department with complaint of weakness of all four limb for 12 hours. There was no sensory loss and not any evidence of bladder, bowel dysfunction. He was conscious and well oriented. On enquiry he told that he had mild fever for four days

though not recorded. He had no difficulty in deglutination, dysphonia, dyspnoea, diplopia, facial asymmetry. He had no history of neck trauma, drug intake, diarrhoea and vomiting, excessive physical exertion, excessive carbohydrate intake. He had no such prior episode. His vitals were normal. General, cardiac, respiratory and abdominal examination were within normal limit. On examination, power of all limbs were 2/5, hypotonic. Deep tendon reflexes and superficial reflexes were absent, bilateral planters were non elicitable. All modalities of sensation and all cranial nerve were intact.

Investigation

On admission his haemoglobin was 15.6 gram/decilitre, total leukocyte count was $3.2 \times 10^3/\mu\text{l}$, differential count was polymorphs-47%, lymphocyte-46%, monocyte-3%, eosinophil-4%, and platelets count was 2000/mm. His random blood sugar-123 mg/decilitre, serum sodium-134 meq/L, serum potassium-1.8 meq/L were revealed. Renal, liver and thyroid functions tests were normal. Dengue NS1 antigen was positive. Urinary pH was 6.4, no albumin, no sugar. Urinary sodium, potassium and osmolality were within normal limit. Electrocardiogram revealed prolongation of PR interval, ST segment depression, T wave inversion and prominent U wave suggestive of hypokalemia (figure 1). Serum creatinine kinase, EMG and NCV were normal.

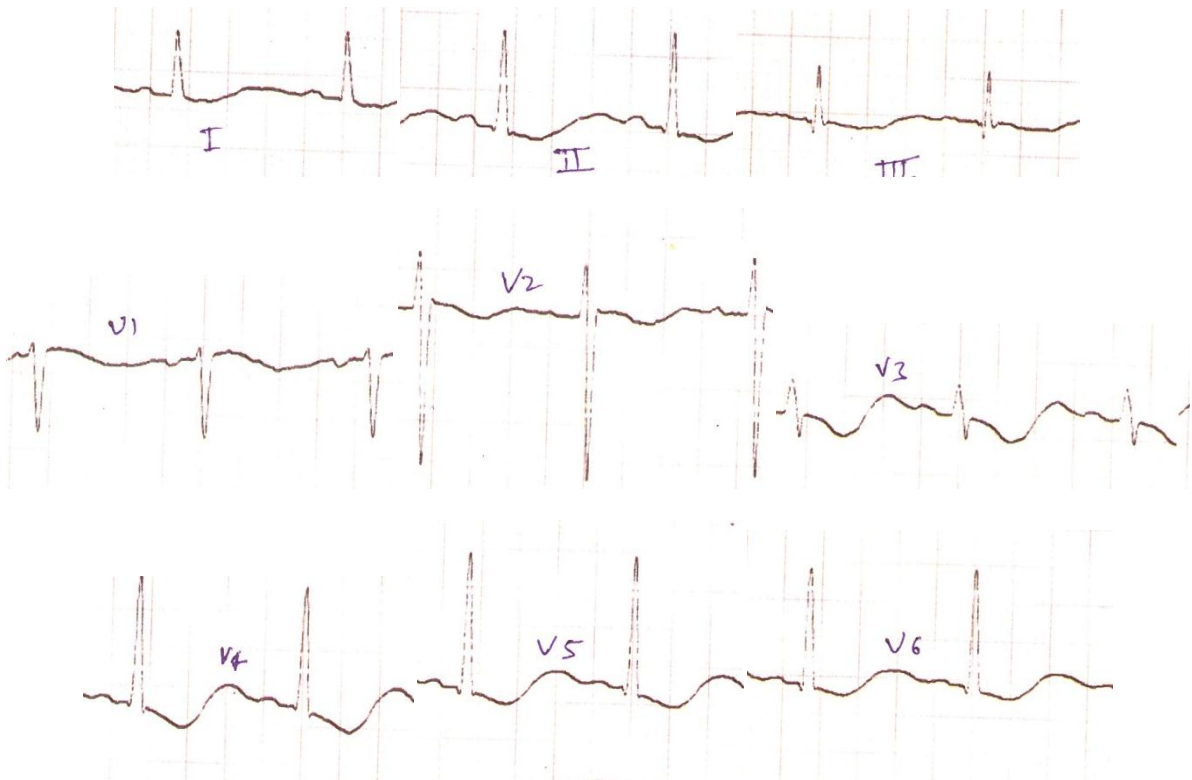


Figure 1: Electrocardiogram.

Treatment and Follow Up

We started treatment with potassium correction at the rate of 20 meq/L. After 6 hour of treatment muscle power was 3/5 and after 12 hour it was 4+/5. Platelets count were 24000, 56000 and 80000 on 2nd, 3rd and 5th day respectively. Patient was discharged on 5th day without residual weakness. Patient was followed up for 2 months, he was alright.

DISCUSSION

Dengue fever is a common mosquito borne disease in north India. The common presentations of dengue are high grade fever, myalgia, arthralgia, patechie, epigastric pain , nausea and vomiting. Less common presentations are epistaxis, hematuria, hemetemesis and other bleeding manifestation.³ Various neurological manifestation like encephalitis, myelitis, myositis, acute disseminated encephalomyelitis has also been reported.⁴ Only few cases of hypokalemic quadriparesis in dengue are reported in literatures.^{4,5,6} Although the exact mechanism of hypokalemia in dengue is not known. Some hypothesis described in literature are that hypokalemia developed either due to transcellular shift or due to renal tubular abnormality.⁶ Other causes of hypokalemia can easily be ruled out by history and few investigation. Normal urinary examination ruled out hypokalemic periodic

paralysis. Guillain barre syndrome (GBS) can be ruled out by fever at presentation and normal nerve conduction velocity (NCV). Normal creatinine kinase and EMG ruled out myopathies. Dramatic improvement after potassium correction proved the diagnosis of hypokalemic quadriparesis.

CONCLUSION

Dengue should be suspected as a possible cause of Hypokalemia in all the patients presented with weakness of limbs with fever because it may lead to Acute motor quadriparesis. So not only platelets count and hematocrit but serum potassium level should also be monitor regularly to prevent neurological disability. The exact mechanism of hypokalemia in dengue needs to be studied further.

ACKNOWLEDGEMENTS

The authors are heartily thankful to Prof Virendra Atam, Neurology Unit, Medicine Department for his exilent guidance and Dr Anju Dinkar, Junior Resident, Department of Microbiology, KGMU for her assistance in identifying dengue and preparing the manuscript.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: Not required

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DOI: 10.5455/2320-6012.ijrms20141196

Cite this article as: Singh J, Singh A, Dinkar A, Atam V. A rare presentation of dengue fever: acute motor quadriparesis due to hypokalemia. *Int J Res Med Sci* 2014;2:1732-4.