Biochemistry **Case Report**
International Journal of Clinical And Diagnostic Research
Volume 2, Issue 3, May - Jun 2014.

Hypokalemic Periodic Paralysis In Woman:A Rare Case Report

Kulkarni Sweta[1*] and Bidkar Prasanna Udupi[2]

Abstract
Hypokalemic periodic paralysis (HPP) is a form of periodic paralysis, presents with sudden onset of weakness progressing to life threatening respiratory failure. The cause of this paralytic disorder may be genetic or acquired. Sudden onset of weakness is triggered by stress such as viral illness, fatigue, fight, emotional disturbance and medications like insulin, beta-2 agonists and steroids. A case of 45year old woman with sudden onset of weakness in lower extremities is presented here. Laboratory evaluation revealed low serum potassium and normal thyroid function tests. The paralytic weakness improved upon potassium supplementation. HPP is more common in males but our case is unique in that a woman presenting with symptoms of HPP.

Author Affiliations: [1]Department of Biochemistry, Mahatma Gandhi Medical College and Research Centre, Puducherry, [2]Department of Anaesthesiology and Critical Care, Jawaharlal Institute of Postgraduate Medical Education and Research, Puducherry.

Keywords: Hypokalemic periodic paralysis, periodic weakness, channelopathies.

Corresponding Author:Dr. Kulkarni Sweta, Assistant Professor, Department of Biochemistry Mahatma Gandhi Medical College and Research Centre, Puducherry, Contact No: 09740444616 Email Id: swetakulkarni82@gmail.com.

1. INTRODUCTION

Periodic paralysis is a heterogenous group of muscle disorders characterized by flaccid muscle weakness at irregular intervals and are more episodic than periodic[1]. Most of the conditions are hereditary or due to secondary disorders. There are several types of Periodic Paralysis associated with metabolic and electrolyte abnormalities. Of these, Hypokalemic Periodic Paralysis (HPP) is the most common with a prevalence of 1 in 100,000 [2].

2. CASE REPORT:

A 45 year old woman was brought to the casualty, in the morning with complains of sudden onset of weakness in both lower limbs since last night. There was no history suggestive of trauma/ fever/ diarrhea/ convulsions/slurring of speech and weakness of upper limbs. She was a known case of type 2 diabetes mellitus on regular insulin treatment for the past 1 year. A year back she underwent a surgery for a small mass over lumbar region. She had no other chronic illnesses. There was no history of similar complaints in the family and she was nonvegeterian by diet.

On general physical examination she was stable. On central nervous system examination, higher mental functions were normal and lower motor function examination revealed, only biceps jerk was elicited, plantar reflex was flexor and other reflexes were absent. Lower limb muscle tone and power was decreased. Sensory and cranial nerves examination was normal. Cardiovascular system, respiratory system and abdominal examination were unremarkable.

Laboratory investigations revealed low serum potassium of 2.2 mEq/L (3.5-5.5mEq/L) and calcium 6.9mg/dl (9-11mg/dl). Spot urine potassium was normal. Blood urea and serum creatinine were within reference range. Thyroid profile results were: TSH-2.21 µIU/ml (0.27- 4.2), FT3-2.75pg/ml (2-4.4), FT4- 1.51ng/dl (0.9-1.7). ECG showed sinus tachycardia.

She was diagnosed as hypokalemic periodic paralysis.

3. DISCUSSION

Periodic paralysis can be divided into primary and secondary. Primary periodic paralysis is hereditary associated with low potassium levels during attacks and presents with myotonia[3].

Secondary hypokalemic periodic paralysis is less common. Clues indicating a secondary cause are the lack of family history and the time of onset of symptoms. Patients who have their first attack of weakness in adulthood should be screened carefully for a secondary cause. Secondary hypokalemic periodic paralysis is nongenetic in origin and results from causes such as thyrotoxicosis, barium poisoning, primary hyperaldosteronism, licorice ingestion, and gastrointestinal diseases [4].

Hypokalemic periodic paralysis is a rare disorder characterized by sudden onset, transient attacks of flaccid paralysis of varying intensity and frequency. Although mostly familial in etiology, several sporadic cases with different causes have been reported. Male dominance in this disorder has been reported because of decreased penetrance in women[5]. Attacks may be provoked by stress such as a viral illness or

fatigue, or certain medications such as beta-agonists, insulin or steroids, rest after exercise and high carbohydrate meal. It results from genetic disorders of ion channels called 'channelopathies'[6]. Sodium, chloride, and calcium channelopathies, as a group, are associated with myotonia and periodic paralysis. Serum potassium levels are normal during the asymptomatic period and are only mildly reduced during the period of muscle weakness.

There are two forms of HPP, paralytic and myopathic but paralytic form is more common and presents with episodes of weakness ranging from mild to flaccid paralysis with attacks lasting several hours to days. Paralytic attacks are more common between 15-45 years of age and then decrease in frequency and may be replaced by abortive attacks. Abortive attacks are of long duration, fluctuating weakness which never progresses to paralysis and 25% of these attacks progress to myopathy or permanent muscle weakness [7].

Diagnosis is based on patient history, serum electrolyte levels, CMAP (COMPOUND MUSCLE ACTION POTENTIAL) amplitude test and genetic analysis[8]. Treatment includes oral water hydration, potassium rich diet, oral potassium supplementation and intravenous potassium in only life threatening condition[9].

4. CONCLUSION

This patient 45yr old woman presented with sudden onset of lower limb weakness with markedly abnormal low potassium with normal thyroid function. After ruling out differential diagnosis for weakness, HPP was diagnosed. Oral and intravenous potassium supplementation was given and progressive improvement in weakness was seen. Failure to diagnose HPP can result into fatal outcomes like respiratory failure and cardiac arrhythmias.

5. REFERENCES

1. Sansone V, Meola G, Links TP, Panzeri M, Rose MR. Treatment for periodic paralysis. Cochrane Database Syst Rev 2008; 23:CD005045.
2. Alkabie JM, Mushtaq A, Fatma N et.al "Hypokalemic periodic paralysis: a case series, review of the literature and update of management". European Journal of Emergency Medicine 2010; 17:45–47.
3. Wong P. Hypokalemic thyrotoxic periodic paralysis: a case series.CJEM 2003; 5:353–355
4. Soule BR, Simone LN, "Hypokalemic Periodic Paralysis: a case report and review ofthe literature. Cases Journal 2008; 1:256
5. Sternberg D, Tabti N, Hainque B, Fontaine B. Hypokalemic periodic paralysis.Gene reviews. http://www.ncbi.nlm.nih.gov/books/ 2006
6. Jurkat-Rott K, Lerche H, Lehmann-Horn F: Skeletal muscle channelopathies. J Neurol 2002; 249(11):1493-1502.
7. Sansone V, Meola G, Links TP, Panzeri M, Rose MR. Treatment for periodic paralysis. Cochrane Database Syst Rev 2008; 23:CD005045
8. Lin SH, Lin YF, Chen DT, Chu P, Hsu CW, Halperin ML: Laboratorytests to determine the cause of hypokalemia and

paralysis.Arch Intern Med 2004; 164(14):1561-1566.

9. Sansone V, Meola G, Links TP, Panzeri M, Rose MR. Treatment for periodic Paralysis. Cochrane Database Syst Rev 2008; 23:CD005045.