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Editorial Article

Hypokalemia and Periodic Paralysis

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Abstract

Hypokalemia is the most common electrolyte abnormality encountered in clinical practice. Severe hypokalemia is defined as a serum K level of less than 2.5 mEq/L. In severe hypokalemia, severe neurological dysfunctions such as periodic paralysis and signs of cardiac instability such as first and second-degree heart blocks, atrial fibrillation, ventricular fibrillation and asystole may be observed. Hypokalemic periodic paralysis is a rare disease characterized by attacks of muscle weakness and can be fatal if it also involves the respiratory muscles. A 24-year-old male patient was brought to the emergency room with complaints of sudden onset of inability to move his arms and legs. The patient's general condition is good, GCS: 15, consciousness is clear, the patient looks slightly pale and sweats, TA: 120/80 mmHg, N: 62/min, Sa02: 98, sensory examination in the extremities is normal, but muscle strength in all four extremities is 1/5. Other systemic examinations are normal. The patient's ECG showed widespread T waves.

Key words: hypokalemia; periodic paralysis; emergency service

Introduction

Hypokalemia is the most common electrolyte abnormality encountered in clinical practice. Severe hypokalemia is defined as a serum K level of less than 2.5 mEq/L. In severe hypokalemia, severe neurological dysfunctions such as periodic paralysis and signs of cardiac instability such as first and second-degree heart blocks, atrial fibrillation, ventricular fibrillation and asystole may be observed. Hypokalemic periodic paralysis is a rare disease characterized by attacks of muscle weakness and can be fatal if it also involves the respiratory muscles. A 24-year-old male patient was brought to the emergency room with complaints of sudden onset of inability to move his arms and legs. The patient's general condition is good, GCS: 15, consciousness is clear, the patient looks slightly pale and sweats, TA: 120/80 mmHg, N: 62/min, Sa02: 98, sensory examination in the extremities is normal, but muscle strength in all four extremities is 1/5. Other systemic examinations are normal. The patient's ECG showed widespread T waves. No pathology was detected in the patient's brain CT. Blood tests showed K: 1.6 mEq/L. Other laboratory tests were normal. It was learned that the patient was doing his military service and had no additional disease or medication use in his past. When we deepened the history in terms of the reasons that could have caused this K level, we learned that the patient was training under the sun every day and was sweating a lot. The patient was immediately monitored with cardiac monitoring and was started on KCl infusion in 500 cc SF at an hourly rate of 10 mEq/L and 1.5 gr MgSO4 rapid infusion in 100 cc SF. At approximately the 20th minute of the patient's follow-up, N: 35/min and in the ECG taken immediately, R-R distances were irregular and QT interval was measured as 0.52 ms. 1 mg atropine was administered to the patient as an IV push. During the follow-up, N: reached 55/min levels. The patient was consulted to the Internal Medicine-Nephrology Department. The patient was admitted to the Nephrology ward for follow-up, treatment and etiological research. The patient was hospitalized in the ward for four days and his muscle strength examination was 5/5 in all four extremities on the second day. No cardiac symptoms developed during the follow-up period and no pathological ECG findings were observed. No pathology was detected in the examinations performed during the patient's hospitalization and the patient was discharged with the recommendation of outpatient clinic control. Severe hypokalemia is an electrolyte disorder that can cause mortal results and can present with many neurological and cardiac symptoms from mild to severe. In patients presenting with generalized muscle weakness as in our case, periodic paralysis due to hypokalemia must definitely be kept in mind in the differential diagnosis. It should be kept in mind that at this level

of hypokalemia, there may be serious cardiac instability conditions in addition to periodic paralysis.

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