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Thyroid

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Long-term Follow Up of Three Cases of Periodic Paralysis

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Introduction: Periodic paralysis (PP) is a disorder of muscle ion channels. It is clinically manifested by episodes of painless muscle weakness and often precipitated by heavy exercise, fasting, or high-carbohydrate meals. Although first described in 1951, there is limited information for its long term course. We describe long term follow up of 3 cases of PP.

Case 1: A 28-year-old male presented to the emergency room for abnormal sensations of lower extremities and inability to move his legs. Symptoms progressed to upper extremities with serum potassium of 1.7 mmol/L. He was treated with potassium chloride and discharged the next day with diagnosis of PP. He reported high intensity exercise precipitating these episodes and milder symptoms two years previously. Patient also had symptoms of hyperthyroidism, confirmed by thyroid functions tests. Physical examination showed normal vitals, small but palpable thyroid, and no neurological deficit. He was treated with methimazole, propranolol and KCl 20meq. Serum potassium normalized in 4 weeks and KCl was stopped. Following 3 months of treatment, patient developed hypothyroidism and was prescribed levothyroxine. Patient is currently euthyroid and able to perform daily activities without episodes of PP for the next 6 years of follow up.

Case 2: A 29-year-old male presented with severe exertional muscle weakness for 1.5 years. Symptoms worsened with exercise. He had no family history of any neurologic diseases. Physical examination: normal vitals, thyroid, muscle, and neurologic exam. Laboratory values: normal thyroid function, serum potassium, liver function, and creatine kinase. EMG showed decreased amplitude of the compound muscle action potential (CMAP), with reduced motor unit recruitment or electrical silence. Patient was prescribed propranolol 20mg. Genetic testing revealed CACNA1S mutation consistent with hypokalemic periodic paralysis. He was prescribed eplerenone and acetazolamide. He has displayed no new symptoms from exertion and continues to perform normal daily activities on the current regimen.

Case 3: A 72-year-old male presented with episodes of flaccid paralysis that lasted several minutes. Patient reported each episode started about an hour after eating dinner. During one episode serum potassium was 3.2 mmol/L and his symptoms slowly resolved after receiving potassium. His medical history was notable for hyperlipidemia, hypertension and pre-diabetes. Vital signs revealed stage-1 hypertension. Physical examination during the episode was notable for weakness greater in the proximal muscles and hyporeflexia. Laboratory values with TSH 2.03 mcIU/mL and follow-up potassium level 4.3 mmol/L. He continues to perform normal daily activities without any PP symptoms for the next 9 years following the initial episode.

Conclusion: Limited information is available regarding the long-term follow up of patients diagnosed with PP. Our 3 patients illustrate a relatively benign long-term course with appropriate treatment.

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