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Case Report on Carbidopa-Levodopa induced Hypokalemia

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ABSTRACT

Hypokalemia is defined as a serum potassium concentration of less than 3.5 mEq/L. This is one of the most commonly encountered & a potentially life-threatening electrolyte abnormality in clinical practice that may be iatrogenically induced. Hereby we report a case of Levodopa induced hypokalemia in a 73 year old female patient with Parkinson's disease. She symptomatically improved after intravenous Potassium and Magnesium correction. Clinicians who prescribe L-dopa/Carbidopa should be mindful of the potential for precipitating the kaliuretic effect of the drug causing electrolyte imbalances, especially in elderly patients.

KEYWORDS: Hypokalemia, Carbidopa- Levodopa, Parkinsonism

INTRODUCTION

Adverse drug reactions (ADRs) are hurdles in the management of illnesses. They increased the unwanted effects of drugs, increase the cost of therapy, challenge the safety of the therapy, and increase the length of hospitalization.[**1**-**3**] ADRs can be prevented to a large extent by timely diagnosis.[**4**,**5**] The magnitude of the adverse effect may range from a minor effect to even a life-threatening condition.[**5**,**6**]

Parkinson's disease (PD) is a common neurodegenerative disorder with distal resting tremor, rigidity, bradykinesia, and asymmetric onset as the cardinal physical signs.7 Levodopa (Ldopa) is the most effective antiparkinsonian agent and is well tolerated at all stages of the disease.8 The common adverse events of the drug include motor fluctuations, dyskinesia, chorea, dystonia, myoclonus, ocular dyskinesia, respiratory dyskinesia, neuropsychiatric symptoms including psychosis, sweating, facial flushing, hyperthermia, urinary disturbances, bloating, abdominal discomfort, dysphagia, drooling of saliva, dry mouth, dyspnea, pain, numbness, paresthesia, restlessness, and akathisia. However, Levodopa/Carbidopa induced hypokalemia is rare and unusual.

CASE REPORT

A 73 year old female patient visited the internal medicine department with complaints of loose stools and vomiting for 1 day followed by an episode of transient loss of consciousness accompanied with sweating for which she was admitted to the general ward for further evaluation. She had no history of fever, breathlessness or dysuria. She is a known case of Seizure disorder, Parkinsonism for 9 years on Syndopa Plus, Vascular dementia, Type II Diabetes Mellitus, Systemic Hypertension, Hypothyroidism for years. In addition she explained a history of Urinary tract infection – Klebsiella species, Right lower lobe-pneumonia in the past. No drug allergy noted for the patient.

The blood report always showed a decreased potassium level. On admission itself the electrolyte level was on the lower side which indicated the drug induced effect. The mechanism of this syndopa induced hypokalemia is unknown. Possible causes of hypokalemia were excluded by appropriate clinical and laboratory examinations. Routine blood investigations showed hypokalemia and hypoalbuminemia with potassium values as 2.24 on 15/04/2021 & 2.77 on 16/04/2021. She was managed with intravenous potassium and magnesium correction. Daily monitoring of potassium levels were done which showed an improving trend. As she improved symptomatically she was discharged with Tab. Levipil 500 mg 1-0-1,Tab. Eltroxin 50 mcg 1-0-0, Tab. Syndopa plus 1/2 - 1/2 - 1/2, Tab.Benalgis 1-0-0, Tab. Meloset 3 mg 0-0-1, Tab.Razo 20 mg 1-0-0, Tab. Folic acid 5 mg 0-1-0,T. Livogen 0-1-0.Tab.Syndopa cannot be stopped in this specific case as the patient has a history of parkinsonism in about 9 years and stopping the drug increases parkinsonism induced rigidity.

CONCLUSION

Carbidopa –Levodopa (Syndopa plus) is the most effective antiparkinsonian agent and is well tolerated at all stages of the disease. However, both motor and nonmotor adverse events are reported with the utilization of L-dopa. Electrolyte imbalances such as hypokalemia and hyponatremia are very rare. Potassium excretion in a 24-h urine collection is the best way to assess the urinary potassium excretion which is an important measure to assess hypokalemic effects earlier in patients(10).Primary care and family physician who prescribe Levodopa/carbidopa should be mindful of the potential for precipitating hypokalemia in

patients. The majority of hypokalemia cases so far reported are drug-induced. Our patient exhibited profound hypokalemia with significant symptoms. Fortunately, the etiology was identified relatively early in her hospitalization. As clinical pharmacists monitoring patient therapy, we must be vigilant in identifying potentially drug-induced disease as early as possible for better patient care. In doing so, we will assist in early treatment interventions to enhance patient outcomes and reduce lengths of stay while preventing untoward reactions and associated medical complications.

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