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HEMIBALLISMUS IN NON-KETOTIC HYPERGLYCEMIA-A RARE CASE REPORT

Medicine

KEYWORDS:

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ABSTRACT

Hemiballismus is an unilateral involuntary movement disorder involving both proximal and distal groups of muscles. Rarely it may be the presenting feature of non-ketotic hyperglycemia. Hyperglycemia induced hemiballismus is a benign condition, which is usually controlled with blood sugar management

INTRODUCTION:

Movement disorders namely chorea, hemiballismus- hemichorea, choreo-athetosis can be induced by hyperglycemia. Early recognition of hyperglycemia induced movement disorder is important as hyperglycemia is an easily treatable disorder and hence carries good prognosis. Here we report a case of non-ketotic hyperglycemia in a 65 years old female patient presenting with hemiballismus.

CASE REPORT:

A 65 year old lady, who was a known hypertensive under treatment since last 5 years, was brought to casualty with history of involuntary movement of right upper and lower limbs since one day. There was no history of diabetes mellitus, stroke or previous history of head trauma. On examination patient pulse rate was 98 bpm and blood pressure was 130/80mmHg. Her respiratory system, cardiovascular system and abdominal system examination were normal. Central nervous system examination revealed normal tone bilaterally with power of 5/5 in both upper and lower limbs, with absent deep tendon reflexes bilaterally, with bilateral plantar reflexes being mute. GRBS done in casualty showed it to be high, ECG showed LVH with strain pattern.

Laboratory investigations showed, RBS 486mg/dl, Blood urea 38.8 mg/dl , serum creatinine-1.9 mg/dl, serum sodium-130.7 m mol/ L, serum potassium -3.3 m mol/L, serum chlorine-92 mmol/ L, HB %, RBC count, platlet counts, LFT, thyroid function tests were normal and HIV test was non-reactive. Total count-13070 cells/cumm with neutrophils – 75%, and ESR -25 mm/ hour. CT brain showed normal brain parenchyma.

This clinical presentation was considered to be hyperglycemia induced hemiballismus. Patient was treated with 5 units of regular insulin IV stat, followed by 50 units of regular Insulin in 500ml NS as infusion, with hourly GRBS monitoring, along with normal saline for correction of dehydration and hyponatremia, by about eight hours later, blood glucose was 177 mg/d1 and hemiballismus disappeared in about 18 hours after initiation of treatment. Her blood glucose levels fluctuated between 149 mg/dl and 298 mg/dl in next 2 days without recurrence of hemiballismus. Patient was discharged under satisfactory conditions after 3 days, with advice of regular insulin 15-units in the morning and afternoon and 15-units Human mixtard at night, along with Tab. Amlodepine 5 mg OD.

DISCUSSION:

Involuntary movements can be the rare presenting symptom of diabetes mellitus in elderly patients. Hemiballismus is one of such involuntary movement disorder which presents as wild, rapid, flinging, random and proximal involuntary movements. Lesions of the contralateral subthalamic nucleus or its connections due to vascular lesions, metabolic disorders, tumors, multiple sclerosis, huntingsons-chorea, HIV infection, toxin, SLE and thyrotoxicosis are common associations[1]. Hemiballismus occurring as a consequence of non-ketotic hyperglycemia is a well characterized clinical syndrome with benign outcome. It has female preponderance and tends to be more common in Asian patients[2]. Rarely it can be presenting manifestation of diabetes in elderly persons[3].

Etiopathogenesis of Hemiballismus associated with non-ketotic hyperglycemia remains speculative. Hyperglycemia induced regional cerebral blood flow impairment in the absence of ketoacidosis leads to attenuation of kreb's cycle in brain and increases gamma-amino butyric acid depletion via the succinic semi-aldehyde pathway[4]. Disinhibition of dopamine pathways in basal ganglia causes dopaminergic hyperactivity. Hyperviscosity with cytotoxic edema or ischemia resulting in incomplete infarction are also considered to play a role[5]. Older women are predisposed due to postmenopausal estrogen deficiency causing dopamine hyperactivity[4,5].

The diagnosis is made typically by clinical and radiological features. The clinical features include presence of ballistic movement with non-ketotic hyperglycemia. The radiological features include CT brain typically showing an area of hyperdensity in the basal ganglia. The charateristic T1-weighted MRI is high signal intesity in contralateral putamen, which might persist for months despite clinical improvement[7].

Management of non-ketotic hyperglycemia induced hemiballismus is primarily centered arround aggressive treatment of increased blood glucose levels. In most cases the movement disorder resolves within 24 to 48 hours of normoglycemia, but sometimes may last for months[6]. Persistence of movements warrant use of antipsychotics, benzodiazepines, anticonvulsants such as topiramate and tetrabenzine.

CONCLUSION:

Although non-ketotic hyperglycemia induced hemiballismus is an unusual occurrence, differential diagnosis in patients with hemiballismus is key in diagnosis. Prognosis is excellent with the treatment of hyperglycemia.

TEACHING POINTS:

1. Involuntary movement disorders though rare but may be one of the ways of initial presentation of undiagnosed diabetes mellitus.

2. Hence screening for diabetes mellitus is must, even without

previous history, in a patient presenting with movement disorders.

3. Hyperglycemia induced involuntary movements are usually benign and are usually controlled with proper blood glucose management.

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