

Hyperglycaemic Chorea in a Non Asian Patient

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Abstract: *Although not very frequent, chorea may be a manifestation of hyperglycaemia, more frequently on Asian elder women with type 2 Diabetes, predominantly presenting with non-ketotic hyperglycaemia. The authors present the case of a 68 years old Caucasian woman presenting with hyperglycaemia and involuntary choreiform movements of the right hemibody. The patient was not taking any medication but there was a previous Diabetes diagnosis. An initial arterial blood sample revealed a glycaemia of 459mg/dL. Insulin was initiated, and a blood sample and Cerebral CT-Scan scan were requested. The blood sample allowed the exclusion of infectious processes and the cerebral CT-Scan helped to exclude stroke, haemorrhage, tumours and other cerebral lesions. The patient was admitted due to a decompensated Diabetes Mellitus and to Choreiform movements and the diagnosis of Hyperglycaemic Chorea started to be a possibility. The patient kept the insulin administrations until normalization of the glycaemic profile. A progressive resolution of the involuntary movements was observed, with their resolution on the 3rd day of internment. The patient was discharged under medication with oral antidiabetics (metformin, a DPP4 inhibitor and a sulfonylurea). A Brain MRI revealed a light T1 hypersignal in the posterior part of the putamen, one characteristic finding of Hyperglycaemic Chorea.*

Keywords: Chorea; Diabetes Complications; Diabetes Mellitus, Type 2; Hyperglycemia

1. Introduction

Although infrequent, chorea can be a manifestation of hyperglycaemia, being more frequent in Asian elder women with type 2 Diabetes, predominantly with nonketotic hyperglycaemia¹²³⁴⁵. It is potentially reversible with an adequate metabolic control and should thus be considered as a cause when approaching a patient with Chorea, particularly if there is a known (or suspected) history of type 2 Diabetes Mellitus¹³⁴⁶.



Image 1: Movements

Characteristic findings may be found on brain MRI, namely T1 hyperintensities in the basal ganglia, that are thought to be associated with vasogenic oedema, and may also be reversible with adequate metabolic control²⁴⁵⁷⁸⁹. It is admitted that small focal strokes may also have a role in the etiology of these alterations⁵⁹¹⁰.

It is mandatory to exclude other aetiology, such as stroke and other structural alterations, especially when being faced with an acute situation⁰³⁶.

The present case differs from the reported literature in the epidemiology, since occurs in a non Asian woman.

2. Case Description

The authors present the case of a 68 years old Caucasian woman, sent by her assistant General Practitioner (GP) to the Emergency Department (ED) due to the presence of hyperglycaemia and involuntary choreiform movements of the right hemibody, with 3 days of evolution. The movements involved the face and both right limbs.

The patient was not taking any medication and denied the existence of chronic comorbidities, but the accompanying daughter referred the existence of a Diabetes diagnosis several years earlier. There was no history of previous involuntary movements, there were no other neurological manifestations noticed, and there was no familiar history of Chorea.

On the ED the right hemibody involuntary movements were observed, with predominance on the upper limb, but involving the face and lower limb as well. There were no deficits of muscular strength or sensitivity. The remaining physical examination was normal.

An initial arterial blood sample revealed a pH of 7.43 normal oxygen and carbon dioxide pressures, a Sodium of 133 MM/l, Potassium of 4.3 mmol/L and a glycaemia of 459mg/dL. Insulin was initiated, and a blood sample and Cerebral CT-Scan scan were requested.

The blood sample allowed the exclusion of infectious processes (Leukocytes $7.80 \times 10^9/L$ [4.50 - 11.50]; Haemoglobin 14.2 g/dL [12.0 - 15.0]; Platelets $118.0 \times 10^9/L$ [150.0 - 450.0]; Sodium 132 mEq/L [136 - 145]; Potassium 4.1 mEq/L [3.4 - 4.4]; Chlorine 96.5 mEq/L [98.0 - 107.0]; Glycose 422 mg/dL [74 - 106]; Urea 48 mg/dL [16 - 42]; Creatinine 0.6 mg/dL [0.5 - 1.2]; creatine Kinase 60 UI/L [0 - 150].

The cerebral CT-Scan helped to exclude stroke, haemorrhage, tumours and other cerebral lesions.

The patient was admitted due to a decompensated Diabetes Mellitus and to Choreiform movements, under treatment with Intravenous Fluids and Insulin.

A second blood sample during hospitalization, revealed a glycosylated haemoglobin of 14.2% [4.0 - 6.5] and a C Peptide of 3.17 ng/mL [0.81 - 3.85]

Having excluded the major causes of chorea, a relation between both problems was admitted, and the diagnosis of Hyperglycaemic Chorea started to be a possibility. The patient kept the insulin administrations until normalization of the glycaemic profile. A progressive resolution of the involuntary movements was observed, with their resolution on the 3rd day of internment. The patient was discharged under medication with oral antidiabetics (metformin, a DPP4 inhibitor and a sulfonylurea).

In order to confirm the suspected diagnosis, a Brain MRI was performed on the ambulatory, and revealed a light T1 hypersignal in the posterior part of the putamen, one characteristic finding of Hyperglycaemic Chorea.

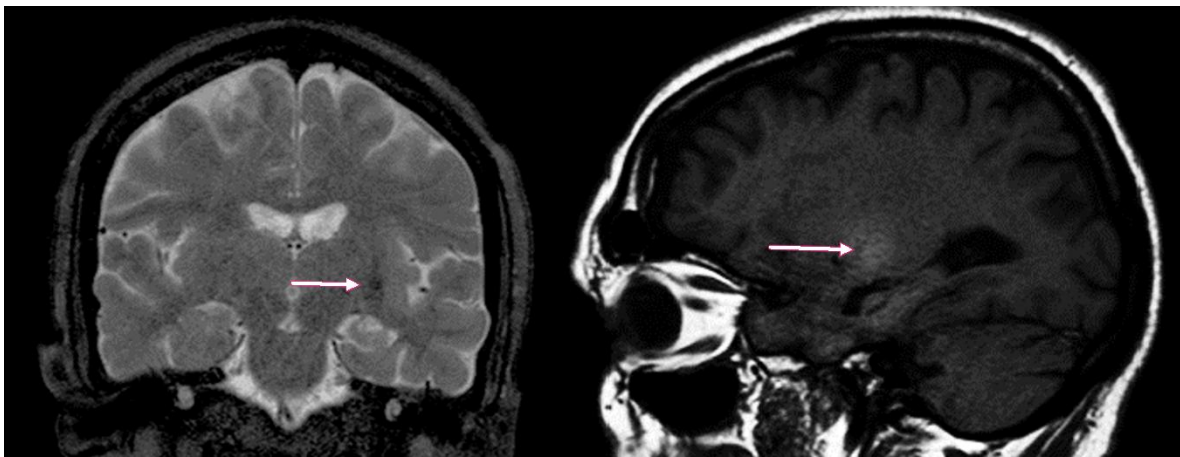


Image 2: MRI

Due to lack of adhesion to the therapeutics, an aggravation of the metabolic control occurred, with relapse of the choreiform movements.

With the help of the daughter, the patient initiated a nocturnal administration of Glargine Insulin, with a new improvement of the glycaemic control, achieving a glycosylated haemoglobin of 7.6% 3 months after discharge, and once more, resolution of the chorea.

3. Discussion

The observed patient wasn't Asian, but had 68 years old and, even though she denied it, had type 2 diabetes, and was presenting with hyperglycaemia due to lack of adhesion to medication. The initial imagological exams were normal, but later the performed MRI confirmed the characteristic abnormalities. With the complementary diagnostic exams, the resolution of the chorea with metabolic control helped exclude other etiologies, such as stroke and epilepsy. The adequate metabolic control (achieved only after strong efforts to ensure patient adhesion) allowed the resolution of the manifestations.

The potential reversibility of the clinical manifestations with adequate treatment makes it important to consider the Hyperglycaemic Chorea on the differential diagnosis at the initial approach on the ED.

4. Conclusions

Although infrequent, Chorea can be a hyperglycaemia manifestation, that should be accounted in elder women with type 2 Diabetes and nonketotic hyperglycaemia, particularly if Asian¹³⁴⁷. The present case however shows that non-Asian patients are also susceptible.

It is mandatory to exclude entities such as stroke, haemorrhage, tumours and epilepsy³⁵⁶.

With an adequate metabolic control hyperglycaemic chorea can be fully reversible²³⁵⁶⁷¹⁰.

5. Conflict of interest

The authors declare no conflicts of interests.

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