Challenged diagnosis on hypoglycemia: Hirata Disease X Factitious Hypoglycemia

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INTRODUCTION

The Insulin Autoimmune Syndrome (IAS or Hirata Disease) is rare among children. Non-ketotic hyperinsulinemic hypoglycemia and the presence of insulin auto-antibody (IAA) are the conditions to diagnose the syndrome. The occurrence of hypoglycemia is due to the binding of the antibody to the insulin molecule at the immediate postprandial, followed by this binomial dissociation, which releases free insulin on serum and triggers symptomatic hypoglycemia.

CASE REPORT

A 6-year-old boy was followed by symptomatic hypoglycemia. Seizures since 7 months old were treated and controlled with anticonvulsants until the age of five, when appeared hypoglycemia symptoms. Several hospitalizations, some highlighted exams: random glucose 21 mg/dL (1.16 mmol/L), insulin 34.7 µU/mL, other critical sample exams were negative, abdominal MRI was normal. No improvement after diazoxide, somatostatin, hydrochlorothiazide, and glucagon. As he did not improve, and there was still a suspect of exogenous insulin, new exams and a new hospitalization occurred: glucose 26 mg/dL (1.44 mmol/L), insulin 686.7 µu/ml. Even though his mother was kept away from him, the basal insulin level increased to > 1000 µU/ml, C-peptide was 5.1 ng/ml (1.1-4.4), sulphonylurea dosage was negative, and two extended OGTT were performed (Table 1). Insulin antibody (IAA) was found >500 U/mL (Expected values < 1.1 U/mL), associated to the insulin molecule, which resumes the syndrome. The chromatography study showed IAA and its slowly dissociation of native insulin. (Figure 1) As soon as dietary and physical activities recommendations were followed, there had been less hypoglycemic episodes.

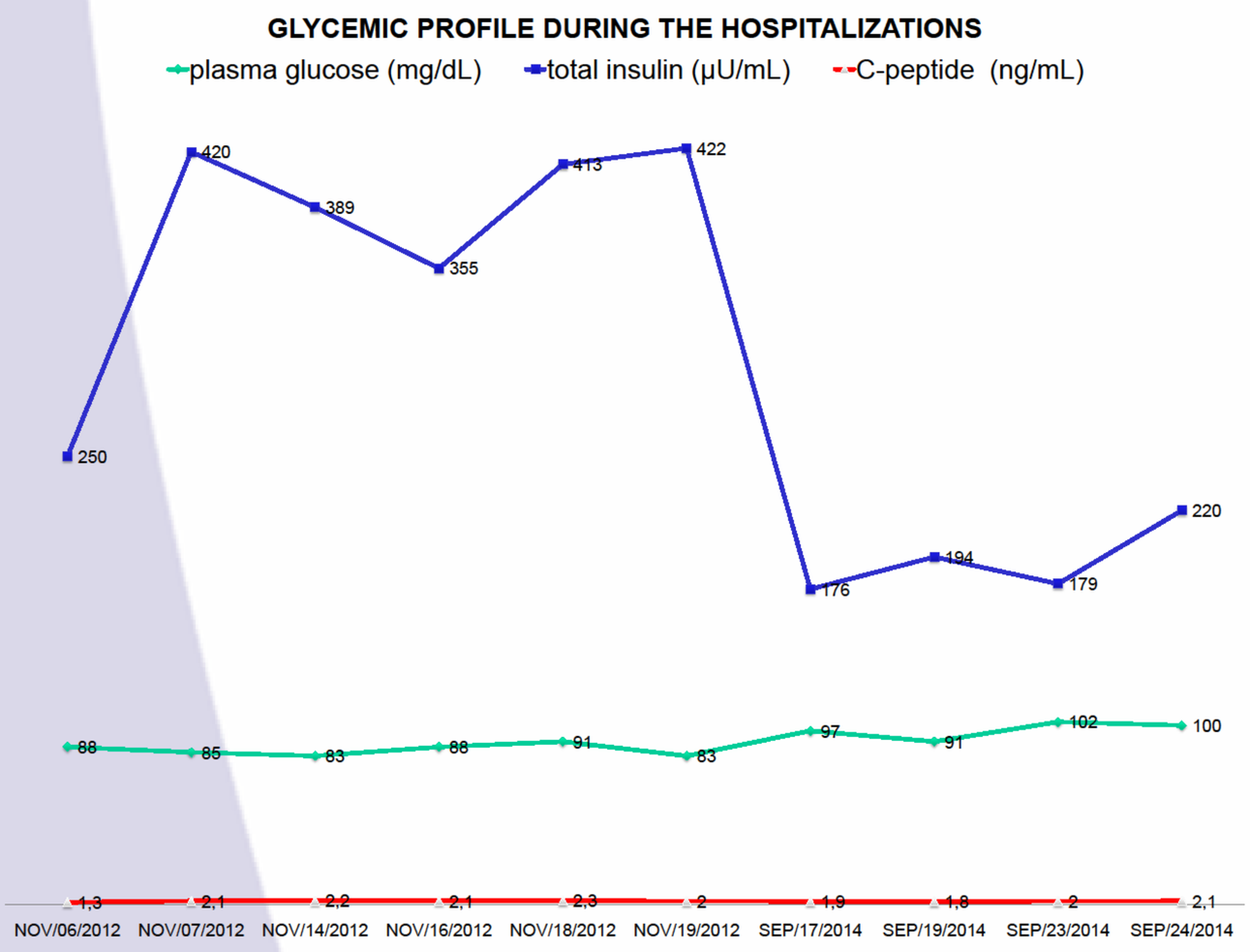

Table 1. Extended Oral Glucose Tolerance Test

	0’	60’	90’	120’	150’	180’
Glucose (mg/dL)	89	71	112	84	75	74
Total Insulin (µU/mL)	-	550	781	652	514	407
C-Peptide (ng/mL)	-	3,1	5,2	3,7	2	1,8

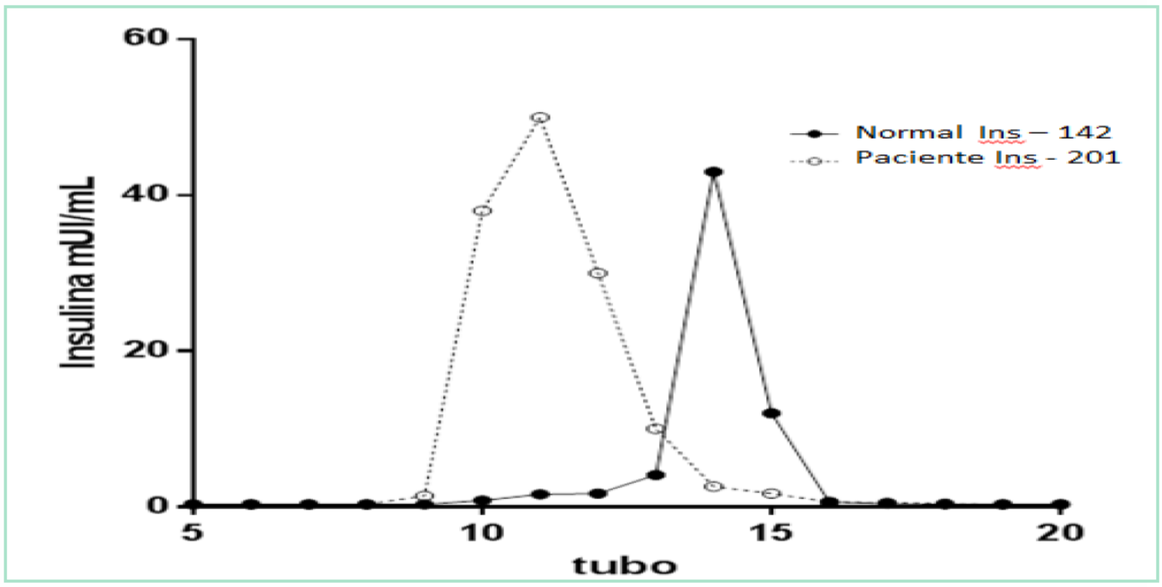

Figure 1. Gel filtration chromatography on Superdex peptide *0,9x30cm*

CONCLUSION

In general, Hirata Syndrome has not been found during the childhood, and usually there is either previous exposure to some drugs as methimazol, glycine and gluthatione. As, at this illustrated case, both statements were negative, we have been considering the possibility of factitious hypoglicemia. The trigger might have been the previous exposure to insulin, what concepts the setting of “Hirata-like Syndrome”, which is considered a novel insight into clinical practice.

The attempt to exclude factitious hypoglycemia throughout four hospitalizations and judicial separation of mother and child were necessary to prove the mother was not giving him insulin inadvertently. High C-peptide serum excluded exogenous insulin use.

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