OBSERVATIONS

Insulin Autoimmune Syndrome Induced by α–Lipoic Acid in a Caucasian Woman: Case Report

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Insulin autoimmune syndrome (IAS) is a rare cause of hypoglycemia characterized by the production of autoantibodies to insulin in individuals without prior insulin administration. Drugs containing the sulfydryl group are known to be associated with this syndrome (1). IAS induced by α-lipoic acid (ALA) (a popular health supplement containing a sulfydryl group) has been described only in Japanese patients (2–4). We report on the first case of IAS likely induced by ALA in a Caucasian patient.

A 70-year-old Italian woman was referred to our hospital on 21 October 2010 because of recurrent episodes of sweating, weariness, and fainting occurring both fasting and postprandial. Her symptoms began 3 days before she entered the hospital. The patient, a retired nurse, had been well before the onset of symptoms. She had not taken any medication (insulin included) until 20 days prior to her hospitalization when a multivitamin formula containing ALA (600 mg/day) was administered for carpal tunnel syndrome. The medication was discontinued but soon after the hospitalization, sweating and fainting occurred again. The woman's plasma glucose was 24 mg/dL; serum insulin was 57 μU/mL (normal value 6–27); and C-peptide was 11.9 ng/mL (normal value 0.9–7.1). During the following weeks, continuous highly concentrated (33%) glucose infusion was administered via a central venous catheter because of persistent hypoglycemia. Sulphonylurea surreptitious ingestion was excluded by negative blood testing. Anti-insulin antibodies were present in high titer (210,000 arbitrary units; normal value 0.0–5.0). Glutamic acid decarboxylase and protein tyrosine islet antigen-2 antibodies were absent. HLA typing demonstrated the presence of HLA DRB1*0406, an allele (more frequent in the Asian population) associated with increased susceptibility to IAS (5). Computerized abdominal tomography (CAT) revealed a small (4 mm) nodule in the pancreatic tail confirmed by endoscopic ultrasonography. However, considering the recent assumption of ALA and the high titer of anti-insulin antibodies, a presumptive diagnosis of IAS was made. Prednisone (50 mg/day) was initiated (29 October 2010). Hypoglycemia persisted, and diazoxide (300 mg/day) was associated. One week later blood glucose levels were normalized, and the patient was discharged. Prednisone was eventually tapered and diazoxide was stopped 1 month after discharge. The patient remained asymptomatic, and blood glucose levels were normal. Anti-insulin antibody titers significantly decreased in the following months. A 6-month follow-up CAT study has been scheduled.

IAS is relatively common in Japan, where it is the third leading cause of hyperinsulinemic hypoglycemia—probably due to the high prevalence of HLA alleles that confer predisposition to this syndrome (5). ALA is marketed as a nutritional supplement for its presumed beneficial effects on a variety of conditions, and its use is considered to be safe. Because ALA is widely available as an over-the-counter preparation, it is important to be aware that the ingestion of this compound may trigger IAS not only in East Asians but also in Caucasians. IAS must be considered in the differential diagnosis of hyperinsulinemic hypoglycemia in order to avoid undue pancreatic surgery, especially in patients taking drugs known to be associated with the syndrome. Moreover, the simultaneous presence of abnormal CAT findings and anti-insulin antibodies may represent a diagnostic pitfall.

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E.Br. wrote the manuscript and cared for the patient. A.B. reviewed the manuscript and contributed to discussion. E.Ba. carried out the determination of anti-insulin antibodies. G.B. wrote the manuscript and cared for the patient.

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