

A Case of Insulin Autoimmune Syndrome Triggered by Alpha-lipoic acid

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Introduction: Insulin autoimmune syndrome (IAS) is characterized by spontaneous hypoglycemia, high level of total serum insulin, and the presence of insulin autoantibodies without previous insulin administration. Drugs containing the sulfhydryl group are known to be associated with this syndrome.

Case report: An 85-year-old woman was admitted to the emergency room for altered mentality due to hypoglycemia with blood glucose level of 24 mg/dL. She was diagnosed with type 2 diabetes mellitus five years ago and has been treated with metformin. There was no exposure history for insulin or insulin secretagogues. Alpha-lipoic acid, which contains a sulfhydryl group, has been administered for diabetic neuropathy from one month ago. Vital sign was stable and physical examination was unremarkable. Fasting blood glucose level was 33 mg/dL and corresponding serum insulin level 11.4 μ U/mL, and C-peptide level 4.97 ng/mL. Her HbA1c was 6.6%. Rapid ACTH stimulation test and thyroid function test were normal. Insulin autoantibody was significantly elevated with 86.0% (normal range: 0-7%) and glutamic acid decarboxylase autoantibodies was negative. Tests for anti-nuclear antibody and rheumatoid factor were negative. No evidence of insulinoma was found on abdominal CT, MRI and arterial calcium stimulated venous sampling. She was also positive for insulin receptor antibodies. Her human leukocyte antigen (HLA) type was HLA-DRB1*0406. The patient was treated with prednisolone and hypoglycemic event has not been observed since. Five months later, her insulin autoantibody titer decreased to 41.4%.

Discussion: We present an 85-year-old elderly woman who developed severe hypoglycemia after taking alpha-lipoic acid for one month. The patient's HLA typing result was HLA-DRB1*0406 and both anti-insulin and insulin receptor antibodies were positive. This case demonstrates that IAS should be considered in patients with severe hypoglycemia treated with alpha-lipoic acid, which is common treatment of diabetic neuropathy.

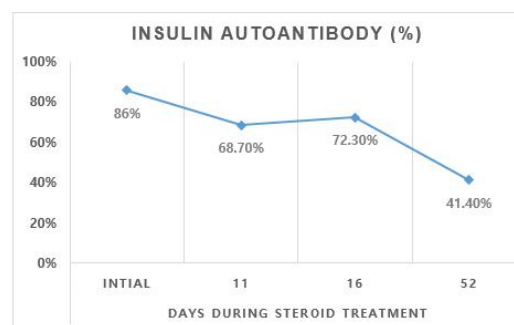


Figure 1 Changes in insulin antibody titers during steroid therapy¹⁾