A Fast-acting Option in Severe Hypertriglycidemia-induced Pancreatitis in an Adolescent with Type 2 Diabetes: Insulin Infusion

The Editor,

Sir,

A fast-acting option in severe hypertriglycidemia-induced pancreatitis in an adolescent with type 2 diabetes: insulin infusion.

The risk of pancreatitis increases when triglyceride levels rise above 1000 mg/dl. This requires particular attention in subjects with type 2 diabetes, which is accompanied by elevated triglyceride levels in one in every two patients. Apheresis, a treatment option in pancreatitis developing secondary to hypertriglyceridemia, is expensive and not available in every center (1). Another option, heparin administration, may result in rebound hypertriglyceridemia (2). Continuous insulin infusion has been successfully and effectively applied in hypertriglyceridemia (3).

A 15.5-year-old female patient presented with abdominal pain and accompanying nausea and vomiting over the previous 2 days. At physical examination weight was 58.5 kg (70^{th} percentile), height 155 cm (13^{th} percentile) and body mass index 24.35 (85^{th} percentile). At biochemical examination glucose level was 393 mg/dl, sodium 122 mmol/l (136-145), potassium 3.9 mmol/l (3,5-5,1), chloride 92 mmol/l (90-110), urea 13 mg/dl (15-44), creatinine 0.37 mg/dl (0,57-1,1), ALT 32 u/l (0-55), amylase 56 u/l (25-125), lipase 195u/l (8-78), triglyceride 6695 mg/dl (0-150), cholesterol 949 mg/dl (0-200) and HDL cholesterol 18 mg/dl (40-60).

Urine and blood were negative for ketone. HBA1C was 12%. Family members and the patient were screened for lipoprotein lipase mutation and no mutation was detected. Abdominal tomography was compatible with acute pancreatitis. Autoantibodies investigated

in terms of autoimmune diabetes were negative. The patient was assessed as type 2 diabetes mellitus and acute pancreatitis induced by hypertriglyceridemia. Oral intake was discontinued due to pancreatitis, the stomach was decompressed and somatostatin infusion was started. Insulin infusion was started at 0.08 units/kg per hour for hyperglycemia and hypertriglyceridemia. At the 14th h of infusion, triglyceride levels decreased by 80% (1110 mg/dl). After 72 h the patient progressed from continuous insulin infusion to subcutaneous insulin therapy (fig.1). The requirement for subcutaneous insulin was gradually reduced and eliminated within 2 months. Values investigated again at the 3rd month were blood sugar 90 mg/dl, insulin 10.53 µIU/mL, C peptide 3.17 ng/ml (0.9-7.1) and HBA1C %5,5, and there was no dyslipidemia.

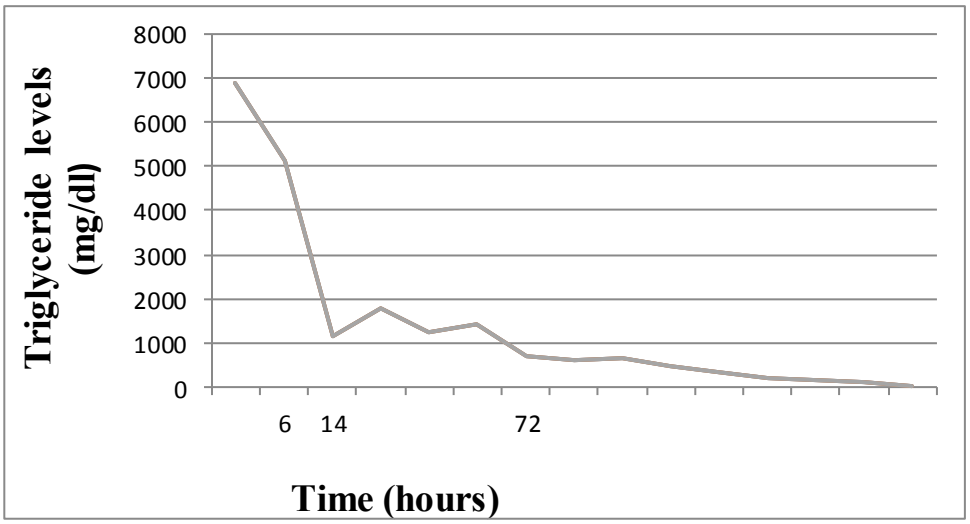

Figure1: Triglyceride levels throughout observation are shown in the figure.

There are no randomized studies comparing these treatment modalities, and authors generally recommend apheresis and insulin therapy, alone or in combination (4). In terms of time to response to treatment, one study in which insulin infusion was applied alone reported a 40% fall in triglyceride levels compared to median triglyceride levels within a mean 24 h, and a 50% decrease in the first 48 h (3). A level of 65.8% in 2 h after a single session of apheresis has been reported (5). A complication-free 80% decrease in triglyceride level was observed in the first 14 h in our patient. In conclusion, continuous insulin infusion alone in patients with severe hypertriglyceridemia is a rapid and effective treatment modality in the reduction of triglyceride levels.

Keywords: Hypertriglycidemia, insulin, pancreatitis

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