

# Lipemic Diabetic Ketoacidosis as a Presentation of Type 1 Diabetes Mellitus

*Henry A Doraiswamy A*

*Endocrine Team, Department of Medicine, Hospital Melaka, Melaka, Malaysia*



## Introduction

Diabetic ketoacidosis is characterised by acidosis, hyperglycemia and ketosis as a complication of insulin deficiency and can rarely be associated with diabetic lipemia, which is a life threatening condition.

## Case Report

We report a twenty year old boy who presented to us with two days history of abdominal pain and vomiting. Clinically he was alert with kussmaul's breathing, metabolic acidosis and ketonemic (RBS 18, Ph 7.18 HCO<sub>3</sub> 8.4) Venous blood appeared grossly lipemic (Triglyceride 35mmol/l). His DKA was treated in accordance with the British Joint society of Diabetes guidelines. Management was difficult as results of blood electrolytes were not available until 39 hours into his DKA due to the hyperlipidemia. Management was based on clinical evaluation with aggressive fluid resuscitation and fixed insulin infusion, the lipemia and ketoacidosis resolved. His autoantibodies anti GAD ,anti IA 2 and anti ICA were detected. Lipoprotein lipase genetic testing is not available in our region. He was sent home on basal bolus insulin analogues. On follow up, his lipids normalised with insulin therapy.

LAB TESTS	ON ADMISSION	Day 3	Day 4	On Follow up 2 months
PH	7.18	7.35	-	-
HCO <sub>3</sub>	8.4	21	-	-
K	2.6	3.1	3.0	-
Na	120	138	145	-
TG	35	12.68	8.38	0.9

## Discussion

Severe DKA results in defective metabolism of dietary lipids and increased lipolysis, resulting in free fatty acids which get converted to ketones (Kitabchi and Gosmanov, 2012). Lipemic samples cause analytical errors and pose challenges to fluid management and electrolyte replacement in the management of DKA, due to the difficulties in analysis. Evaluation of electrolytes are pivotal in managing a patient with DKA due to the rapid infusion of insulin and fluids. In such circumstances emphasis should be placed on clinical evaluation followed by hydration and insulin infusion which assists in the resolution of DKA and eventually lipemia. The use of high speed micro centrifuges show higher efficacy in reducing lipid levels as compared to ultra centrifuged samples (Dimenski et al.,2011), this may assist with rapid turnover of results and hence assist clinical management, if available.

## References:

1. Ganesh Kasinathan and Sirajudeen Rowther .Extreme lipemic diabetic ketoacidosis in an undiagnosed type 1 diabetes mellitus teenager.Asian Journal of science and technology ISSN 0976 – 3376
2. [Gosmanov AR](#), [Kitabchi AE](#).Diabetic Ketoacidosis. Endotext [Internet]. South Dartmouth (MA): MDText.com, Inc.; 2000-2015 Apr 12.

