

Comparison of urinary and plasma ketone using urinary nitroprusside strip in patients with diabetic ketoacidosis

Abstract

Background: Diabetic ketoacidosis is one of the most important and serious acute complications of diabetes and one of the medical emergencies that has been the most common cause of death in patients with diabetes. Prompt diagnosis and therapeutic intervention play an important role in reducing complications and mortality.

Aim: The aim of this study was to compare urinary and plasma ketones using urinary nitroprusside strip in patients with diabetic ketoacidosis.

Materials and Methods: In this cross-sectional study, 38 diabetic ketoacidosis patients (including plasma glucose > 250, blood pH <7.3 and urinary ketone > +2 and bicarbonate <15) referred to the emergency department of Imam Khomeini Hospital were included. To test for plasma ketones, 2 cc of venous blood samples were taken from all participants and transferred to the laboratory for plasma isolation. The resulting plasma was examined with a urine dipstick and the discoloration was recorded. This was repeated at 0, 6 and 12 o'clock for serum ketones. All patients received their treatment according to the treatment protocol of diabetic ketoacidosis and urine ketone, pH and bicarbonate and BE patients were measured routinely. The above findings were recorded in the patient checklist. The data were entered into the software and analyzed.

Results: The mean age of patients was 39.32 ± 18.63 years. 50% of patients were male. Serum ketones were positive in all patients and 34 patients had positive urinary ketones. In this study, serum ketone levels were significantly correlated with blood acidity at baseline and with bicarbonate and basal arterial gas deficit at all three stages.

However, urinary ketones had a significant correlation with blood acidity at baseline and at 12 hour, with bicarbonate at baseline and with arterial gas deficiency at 12 hour.

Conclusion: The results of this study show that examination of plasma ketones with dipstick can be a useful, rapid and accurate clinical trial for the diagnosis of diabetic ketoacidosis in patients with diabetes.

Keywords: Diabetic ketoacidosis, urinary nitroprusside, ketones body