

Using Subcutaneous Insulins to Manage Mild to Moderate Diabetic Ketoacidosis: A Simpler Protocol that May Save Millions in the Developing World

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Editorial

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Editorial

Diabetic ketoacidosis (DKA), known to be a complex metabolic state of hyperglycemia, ketosis, and acidosis leading to osmotic diuresis, dehydration and tissue hypoxia, is the most common hyperglycemic emergency in patients with diabetes mellitus. It carries, if not properly managed, a high mortality rate. Further, most deaths attributed to DKA might have been prevented if a proper management protocol has been followed [1-3]. The treatment of DKA involves correction of hyperglycemia, dehydration, electrolyte and acid-base abnormalities, and identification of the precipitating events while carefully monitoring the patient [4]. Currently used standard treatment guidelines/protocols for DKA adapted from the developed world were suggested to be not ideal for those patients belonging to the developing world [3]. Some reasons that may confirm this suggestion include inability to apply complex or sophisticated guidelines due to lack of diabetes or endocrinology units in most of the hospitals of the developing world as well as lack of a proper hands on training that enables general practitioners in rural or remote from urban areas to properly manage patients with DKA, not mentioning lack of facilities even in many urban areas. The simpler the guidelines, the more efficient the management and the easier to train most physicians to practice the protocol and that's why I believe physicians and scientists living in the developing world

should notice carefully all trials that might help to simplify these guidelines. Recently, an interesting randomized-controlled clinical trial on 50 children/adolescents with mild/moderate DKA showed that 0.15 unit/kg subcutaneous rapid acting insulin as part every two hours in the regular medical ward has been as effective as 0.05-0.1 unit/kg/hour intravenous regular insulin infusion in the intensive care unit. Obviously, a faster recovery/shorter hospital stay was noticed with patients receiving the subcutaneous injections and a lower mean total-dose of insulin units needed for treatment of DKA was also noticed in those patients with no mortality/serious events happened [5]. Similar results were also noticed in adults though a bolus injection of 0.15U/kg IV regular insulin was started before the administration of hourly subcutaneous insulin lispro [6]. In another interesting study, subcutaneous regular insulin administered every 4 hours was shown to be an effective and safe alternative for the insulin infusion treatment of pediatric DKA patients with pH > 7.0 reducing both patient inconvenience and admission costs when compared to either insulin infusion or subcutaneous rapid insulin [4]. Early diagnosis of DKA in adults would help physicians living in the developing countries to adopt some of these measures to properly manage their DKA patients especially those who can't afford the cost of travelling to a specialized hospital/unit to get treatment. I strongly call for randomized controlled trials to be performed in the developing countries to test

these and other simplified protocols and from my clinical experience I encourage comparing the results of the cheaper subcutaneous regular insulin to the rapid ones in mild early diagnosed DKA, I believe impressive results may also be reported.

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