Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

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Diabetic ketoacidosis treatment during COVID-19 pandemic in a country with scarce health resources

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To the Editor:

The article published by Pal R [1] has been of great interest for us. This article discusses some aspects of diabetic ketoacidosis treatment in the context of COVID-19 pandemic. As occurring in other countries, we would like to highlight the higher incidence of this complication in patients infected with COVID-19, whether they have a previous diagnosis of diabetes mellitus [2].

An important pillar in the management of diabetic ketoacidosis is infusion pumps, especially for patients under severe conditions or hyperosmolar component. In these cases, it is necessary to monitor critical patients. However, the healthcare system in Peru is overwhelmed, thus it cannot satisfy the demand of health service. According to data provided by the Peruvian Ministry of Health, there were only 148 intensive-care beds available nationwide and 600,438 infected with COVID-19 before mid-August [3]. Consequently, there was a shortage of important medical equipment for the management of diabetic ketoacidosis such as infusion pumps.

Continuous rapid insulin infusion (R) is an essential factor in the management of hyperglycemic crises. Nevertheless, the use of ultra-rapid subcutaneous insulin regimens may be considered in cases of mild or moderate diabetic ketoacidosis [4]. A drawback of employing subcutaneous insulin is the high cost. Moreover, this type of analogous insulin is not available in most Peruvian hospitals [5]. As a result, the supply of a useful alternative for the management of diabetic ketoacidosis is impossible, given the shortage of infusion pumps.

The use of insulin R via (subcutaneous or intramuscular) every 1–2 hours in patients with diabetic ketoacidosis, decreases the concentration of glucose and ketone bodies after 2 hours of initiation. An important factor of this treatment is an intravenous bolus prior the start of these schemes [6]. When comparing both, the former is easier, less painful and less susceptible to generate tissue necrosis [7]. Regarding the dose and recommended periodicity, there are schemes starting at 0.4 IU/Kg. Half of this dose is given via intravenous bolus and the other half via SC or IM, and later 0.1 IU/kg/h via SC or IM [8]. Even for pediatric patients, the doses is 0.8–1 IU/kg of body weight divided by six. This dose is administered every 4 hours, being an effective and safe scheme [9]. In our experience, we have been administering insulin mixed with saline solution by drip, which is an useful alternative and was being used widely before infusion pumps became available. Unfortunately it requires more monitoring in centers where there is health staff lacking, not to mention the greater exposure for COVID-19.

In conclusion, given the global pandemic, we emphasize the importance of establishing and standardizing an effective and practical protocol for the management of diabetic ketoacidosis. This would achieve better results and fewer complications in the patient, and a lower risk of infection in health personnel.

Author statement

I, Claudia Gutiérrez Ortiz, registered Doctor in Peru, belonging to the Universidad Nacional Mayor de San Marcos, Division of Endocrinology, Hospital Daniel Alcides Carrion, declare that all authors have no conflicts of interest.

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