

Relationship between glycated hemoglobin, Intensive Care Unit admission blood sugar and glucose control with Intensive Care Unit mortality in critically ill

Sir,

We read with great interest, the article on the relationship between glycated hemoglobin (HbA1c), Intensive Care Unit (ICU) admission blood sugar and glucose control with ICU mortality in critically ill patients by Mahmmodpor *et al.*^[1]

The literature on glycemic control in intensive care is taking turns from its earlier publication by van den Berghe done 13 years back, that stress hyperglycemia increases mortality and morbidity. Subsequent studies suggested that intensive glucose control increases hypoglycemic episodes (NICE-SUGAR study),^[2] and recently researchers have stressed the importance of glycemic variability.

This study, again suggests the need for HbA1c in all patients with hyperglycemia presenting to intensive care for the diagnosis of occult diabetes mellitus or stress-induced hyperglycemia (SIH), with SIH associated with more mortality, especially in patients with trauma, as elucidated in previous studies.^[3,4]

We need more clarifications from the authors regarding the study with reference to the points listed below:

1. The sample size of 500 seems to be arbitrarily chosen *a priori*, the justification of targeting this sample size is not clear in the methodology
2. The targets for blood sugar in septic and nonseptic patients should have been a range rather than a fixed value. We don't think it's justified to use an arterial line for the sole purpose of glucose monitoring. The initial sample could have been sent to the central laboratory along with HbA1c, for better accuracy (central laboratory > arterial blood gas analyzer > arterial blood sample by glucometer > venous blood sample by glucometer > capillary sample by glucometer)^[5]
3. The mortality cannot be attributed to the level of HbA1c alone as the baseline APACHE 2 scores are significantly different. It would have been more informative if they had described the data while grouping the patients between levels of HbA1c^[4]
4. There is limited data given in this study regarding baseline body mass index to interpret the existing paradox in diabetics, patient's on corticosteroids (which would have continued in few patients in this study, as the data analysis mentions that 48.4% of patients were on drugs), patient's on vasopressors and the details of nutrition.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

**P. V. Sai Saran, Shakti Bedanta Mishra,
Pralay Shankar Ghosh, Afzal Azim**

Department of Critical Care Medicine, SGPGIMS, Lucknow,
Uttar Pradesh, India

Correspondence:

Dr. Afzal Azim,

Department of Critical Care Medicine, SGPGIMS, Lucknow - 226 014,
Uttar Pradesh, India.

E-mail: draazim2002@gmail.com

References

1. Mahmmodpor A, Hamishekar H, Shadvar K, Beigmohammadi M, Iranpour A, Sanaie S. Relationship between glycated hemoglobin, intensive care unit admission blood sugar and glucose control with ICU mortality in critically ill patients. *Indian J Crit Care Med* 2016;20:67-71.
2. NICE-SUGAR Study Investigators, Finfer S, Chittoek DR, Su SY, Blair D, Foster D, *et al.* Intensive versus conventional glucose control in critically ill patients. *N Engl J Med* 2009;360:1283-97.
3. Bosarge PL, Shoultz TH, Griffin RL, Kerby JD. Stress-induced hyperglycemia is associated with higher mortality in severe traumatic brain injury. *J Trauma Acute Care Surg* 2015;79:289-94.
4. Kerby JD, Griffin RL, MacLennan P, Rue LW 3rd. Stress-induced hyperglycemia, not diabetic hyperglycemia, is associated with higher mortality in trauma. *Ann Surg* 2012;256:446-52.
5. Alexander S, Raymond F, Nicola M. Glycemic control in the intensive care unit: Between safety and benefit. *Isr Med Assoc J* 2012;14:260-6.

This is an open access article distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 3.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as the author is credited and the new creations are licensed under the identical terms.

Access this article online	
Quick Response Code: 	Website: www.ijccm.org
	DOI: 10.4103/0972-5229.180057

How to cite this article: Sai Saran PV, Mishra SB, Ghosh PS, Azim A. Relationship between glycated hemoglobin, Intensive Care Unit admission blood sugar and glucose control with Intensive Care Unit mortality in critically ill. *Indian J Crit Care Med* 2016;20:254-5.