To assess the efficacy and safety of a new insulin infusion protocol used for management of hyperglycemia in ICU/Critical care units; a tertiary care center experience

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Background

In critical care setting, insulin infusion rather than subcutaneous insulin is better to maintain the blood glucose (BG) level in the target range. After the Normoglycemia in Intensive Care Evaluation–Survival Using Glucose Algorithm Regulation (NICE-SUGAR) study in 2009, American association of clinical endocrinology (AACE) and American diabetes association (ADA) have recommended the targets of 140 -180mg/dl for critically ill patients. We have devised a nurses driven insulin infusion protocol in our critical areas with the same target BG, which require monitoring of blood glucose and insulin dose adjustment one hourly.

Objectives

In this study we have studied the efficacy of our insulin infusion protocol in terms of bringing blood glucose to target range and maintaining it, and its safety in terms of preventing hypoglycemia.

Material and Methods

It’s a retrospective review of all patients who received insulin infusion from 1st July 2017 to 30th June 2018. Total of 231 were included and data pertaining to demographic details and related to insulin infusion was documented in a predefined questionnaire.

Results

Location of participants

Conclusion

Our insulin infusion protocol not only achieved and maintained the blood glucose in the targeted range, but it is also safe with a very low risk of hypoglycemia.

References:

Van den Berghe G, Wilmer A, Hermans G, Meersseman W, Wouters PJ, Milants I, et al. Intensive insulin therapy in the medical ICU. N Engl J Med. 2006 Feb 2;354(5):449–61.
Intensive versus Conventional Glucose Control in Critically Ill Patients. New England Journal of Medicine. 2009 Mar 26;360(13):1283–97.

Matrix of Glycaemia	
BG level at the start of insulin infusion Mean (SD)	317 (94.2) mg/dl
Infusion rate at the start of infusion Mean (SD)	3.1 (1.3) units/hour
Time to reach target blood glucose <180mg/dl Mean (SD)	5.7 (3.1) hours
Duration of infusion Mean (SD)	26.39 (13.76)
Mean BG once the target of <180mg/dl is achieved	168.95 (45.52)

Medication inducing Hyperglycemia