Intravenous insulin infusion protocol

Various guidelines provide recommendations regarding target glucose concentrations, but all stress the importance of avoiding hypoglycemia as well. Within the surgical patient population, glycemic targets may vary further depending on the surgical service, such as cardiac surgery, neurosurgery, or reconstructive burn surgery. Glycemic management in critically ill surgical patients is achieved primarily through the use of intravenous insulin infusion protocols [1].

These protocols can include fixed protocols, multiplication factor protocols, and computerized algorithms. In contrast, noncritically ill surgical patients are generally managed through the utilization of subcutaneous insulin with a combination of basal, bolus, and sliding scale insulin. Insulin protocols should be effective at maintaining glucose concentrations within the specified target range with minimal hypoglycemic events. Monitoring glucose concentrations while on either an intravenous or subcutaneous insulin protocol is essential. Point-of-care testing is the primary method for monitoring glucose concentrations in both critically ill and noncritically ill surgical patients and allows for adjustment of the insulin regimen. As patients move between units and to the outpatient setting, ensuring adequate follow-up is essential to maintaining control of hyperglycemia [2].

2: Vespa P, Boonyaputthikul R, McArthur DL, Miller C, Etchepare M, Bergsneider M, Glenn T, Martin N, Hovda D. Intensive insulin therapy reduces microdialysis glucose values without altering glucose utilization or improving the lactate/pyruvate ratio after traumatic brain injury. Crit Care Med. 2006 Mar;34(3):850-6. doi: 10.1097/01.CCM.0000201875.12245.6F. PMID: 16505665.

1)
Robba C, Giovannini M, Meyfroidt G, van der Jagt M, Citerio G, Smith M; Collaborators. Intensive Care Admission and Management of Patients With Acute Ischemic Stroke: A Cross-sectional Survey of the European Society of Intensive Care Medicine. J Neurosurg Anesthesiol. 2021 Feb 9. doi: 10.1097/ANA.0000000000000761. Epub ahead of print. PMID: 33587531.
2)
Ware LR, Gilmore JF, Szumita PM. Practical approach to clinical controversies in glycemic control for hospitalized surgical patients. Nutr Clin Pract. 2022 Apr 30. doi: 10.1002/ncp.10858. Epub ahead of print. PMID: 35490289.