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Patient Safety E-lerts

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It's More Than Counting Carbs, It's Communication and Coordination:
Insulin Administration and Nutritional Therapy

Not many strategies exist, anecdotally or in the literature, to help healthcare practitioners effectively maintain the blood sugar levels of patients, both diabetic and non-diabetic, who are receiving enteral nutrition or total parenteral nutrition. Insulin has consistently been declared a high-alert medication due to the risks associated with its prescribing and dosing.[1]The challenge facing healthcare practitioners—in this case, managing physicians, frontline nursing staff, and nutrition specialists—is one of care coordination.

When a nutrition order for a patient is modified, the patient's insulin regimen may inadvertently remain unreviewed or unchanged. ECRI Institute PSO has seen both events and research requests pertaining to this issue. When managing patients who are receiving enteral or total parenteral nutrition and insulin, practitioners must ensure that the insulin and nutrition work together to maintain a safe blood sugar level.

When there is a change in caloric or carbohydrate intake, change in clinical status or medications, lack of insulin adjustment based on daily blood glucose reading, or prolonged use of sliding scale insulin, there is an increased risk that the patient will experience hypo- or hyperglycemia or other adverse event.[1-3]

For example, one patient with diabetes was receiving continuous enteral tube feeds and receiving 24 units of NPH insulin twice a day to control elevated glucose levels. The patient was scheduled for a CT scan, so the nutrition

Key Contributing Factors

- Management/organization: Lack of support
- Team coordination: Inconsistent communication regarding orders
- Operating environment: Lack of failsafes or notification regarding a change in orders
- Workflow: Lack of notification regarding nutrition therapy modification

Key Recommendations

1. Address the coordination of care for patients who require both insulin and nutritional therapy through both policy- and systems-level solutions. Ensure that communication among nurses and other frontline staff, physicians, and nutrition staff is open, consistent, and clear.
2. Consider that use of such system as an electronic medication administration record or electronic health record system could prompt caregivers to verify that insulin and nutrition orders are still accurate and appropriate.
3. Empower staff members and create systems to ensure regular review of the patient's nutrition and insulin orders for accuracy. Likewise, staff should ensure that the amount actually received during feeding—not just the amount given—is considered before adjusting insulin based on blood sugar values. Staff members should also be able to reach ordering physicians or

was discontinued, but the insulin was not. The patient's glucose level dropped to 26. In another example, a non-diabetic patient in critical care was receiving total parenteral nutrition, when one test found hyperglycemia. The patient was started on Lantus insulin nightly. As the patient recovered, the oral food intake was increased—first liquids, then pureed foods—and the total parenteral nutrition was tapered. However, the nightly insulin dose was not modified, and the patient was found nonresponsive in the morning with a glucose level of 32.

To lessen such risk, the care team should coordinate insulin regimen changes with the nutritional specialist.

nutrition staff promptly if there is a concern or question.

4. Anticipate changes in requirements and consider all sources of dextrose and medications in calculating the patient's insulin requirements.
5. Coordinate among the care team, including pharmacists, to remain aware of enteral feedings and when they are held, discontinued, or tapered, so that patients' insulin orders can be reviewed or modified accordingly.
6. Consider establishing an inpatient diabetes consultation team of doctors and nurses that is available for complex cases; this team should be able to identify potential risks or patterns across units and design education or other interventions to address any safety concerns. This team should also support, facilitate, and reinforce coordination of care with nutrition specialists.
7. Use standardized, structured insulin orders and algorithms to determine the patient's required dosage. Likewise, document these actions consistently.[2,4]

Take Home Point

Because diabetic and non-diabetic patients receiving nutritional therapy and insulin are often managed by more than one practitioner, facilities need to ensure a standardized process to ensure coordinated care. The care approach must be customized to that patient, reviewed regularly by all frontline staff members, and any change to the regimen must be communicated immediately, clearly, and concisely.

References

[1] Moghissi ET, Korytkowski MT, DiNardo M, et al. American Association of Clinical Endocrinologists and American Diabetes Association consensus statement on inpatient glycemic control. Endocrine Practice 2009 Jun;15(4):1-17.

[2] DeYoung J, Bauer R, Brady C, et al. Controlling blood glucose levels in hospital patients: current recommendations. Amer Nurs Today 2011 May;6(5):12-4.

[3] Cohen MR. Pharmacists' role in ensuring safe and effective hospital use of insulin. Am J Health-System Pharma 2010 Aug 15;67(Suppl 8):S17-S21.

[4] Maynard G, Lee J, Phillips G, et al. Improved inpatient use of basal insulin, reduced hypoglycemia, and improved glycemic control: effect of structured subcutaneous insulin orders and an insulin management algorithm. J Hosp Med 2009 Jan;4(1):3-15.

Medical Director's Note

Though all practitioners managing patients receiving nutritional therapy and insulin may not examine each patient simultaneously, their care must be coordinated as if they were. It is key that all

members of the care team understand and act according to the latest care instructions and to support such an initiative, by creating a system that reduces the risk of miscommunication by ensuring that each member of the care team can access any new orders. If your institution has experienced a case in which a patient experienced an adverse event because his or her nutritional therapy and insulin were not coordinated accurately, we can provide confidential assistance to determine why this occurred. *Patient Safety E-lerts* provide participating organizations with an additional periodic educational awareness to help prevent healthcare events from happening in their facilities. To discuss your safety concerns, please contact us at (610) 825-6000 or patientsafety@ecri.org, and we will forward your questions to our experts.

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