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Evidence-Based Practice to Prevent and Treat Hypoglycemia in a Cardiovascular Inpatient Hospital

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Abstract

Hypoglycemia is a significant safety concern that can affect clinical outcomes. It is the goal in glycemic management to maintain blood sugars within a narrow therapeutic range. Patient death or serious disability associated with hypoglycemia, while in a health care facility, is listed as a "never event" (US Department of Health & Human Services, 2006). The nurse's adherence to the hypoglycemic protocol in cardiovascular patients warranted further investigation. Adherence to a hypoglycemic protocol affords prompt action to appropriately treat low blood sugars and prevent a crisis situation. The nursing assessment should include capillary blood glucose test results, patient's level of consciousness, respiratory and circulatory status, existence of IV access, type, time, and amount of insulin given, last PO intake and nutritional status. Depending on the level of glucose and level of consciousness, several algorithms include treatment. This quantitative research, using a prospective causal-comparative design, investigated the effect of education on the nurse's adherence to the hypoglycemic protocol and the incidence of hypoglycemia at one cardiovascular hospital. This evidence-based practice supports patient safety. Quantitative methods were used for collection of naturally occurring data from January through April 2012, with the use of several instruments. Results. The research hypothesis was supported; education on the hypoglycemic protocol improved the nurse's adherence to the protocol and decreased the incidence of hypoglycemia in an inpatient population of cardiovascular patients. Several components that are central to a successful implementation of a program to improve glycemic control in the inpatient setting include development and implementation of interventions, including standardized order sets, protocols, policies, and algorithms with associated educational programs. Updating and educating team members on prevention and treatment of low blood sugar is a quality initiative that will improve safety by increased adherence to the hypoglycemic protocol. A similar quality improvement patient safety, project may be replicated in other populations and settings to increase patient safety.

Title:

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Keywords:

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References:

American College of Endocrinology and the American Diabetes Association (ACE/ADA) Task Force on Inpatient Diabetes (2006). Successful models of implementation. *AACE Inpatient Glycemic Control Resource Center. Endocrinology Practice, 12*. Retrieved from <https://www.aace.com/sites/default/files/IDGC0731.pdf>

American Diabetes Association Position Statement (2011). Standards of medical care in diabetes. *Diabetes Care*. 34: S11-S61. Retrieved from

http://care.diabetesjournals.org/content/34/Supplement_1

Agency for Healthcare Research and Quality (2011). AHRQ Patient safety network never events. *US Department of Health and Human Services*. Retrieved from

<http://psnet.ahrq.gov/primer.aspx?primerID=3>

Bates, D. (2002). Unexpected hypoglycemia in a critically ill patient. *Annals of internal medicine*. Volume 137:2 Retrieved from <http://www.annals.org/content.org/content/137/2/110.full>

Cohen, H. (2009). Avoiding errors associated with insulin therapy. *Medscape Education*. Retrieved from: <http://www.medscape.org/viewarticle/702444>

Egi, M., Bellomo, R., Stachowski, E., French, C., Hart, G., Taori, G., Hegarty, C., and Bailey, M. (2010) Hypoglycemia and outcome on critically ill patients, *Mayo Clinic Proceedings*, 85 (3). Retrieved from <http://ehis.ebscohost.com/ehost/pdfviewer/pdfviewer?sid=cddac29-3219-4385e-f8aff9171c29%40sessionmgr10&vid=22&hid=hid121>

Finfer, S., Chittock, D., Yu-Shuo, S., Blair, D., Foster, D., Dhingra, V., ... Ronco, J. (The NICE-SUGAR Study Investigators) (2009). Intensive versus conventional glucose control in critically ill patients. *New England Journal of Medicine*. 360:13. Retrieved from <http://www.nejm.org/doi/full/10.1056/NEJMoa0810625> – t=articleTop

Gay, L., Mills, G., & Airasian, P., (2009). *Educational research: Competencies for analysis and applications* (9th ed.). Upper Saddle River, NJ: Pearson.

Goldstein, P. (2009). Assessment and treatment of hypoglycemia in elders, cautions and recommendations. *Medsurg Nursing*. Volume 18:4

Jarrett, N., LaBresh, K., & Lux, L., (2011). Evidence-Based guidelines for selected and previously considered hospital acquired conditions. *The Centers for medicare & Medicaid services office of research, development, and information (ORDI)*. Retrieved from <https://www.cms.gov/reports/downloads>

Polite, D. & Hungler, B., (1999). *Nursing research principles and methods* (6th ed.) Philadelphia, PA: Lippincott.

Raghavan, V., Griffing, G., Srinivasan, V. Snow, K. (2011). Hypoglycemia treatment and management. *Medscape Reference*. Retrieved from <http://emedicine.medscape.com/article/122122-treatment-aw2aab6b6b>

Seley, J. Hondt, N. Longo, R., Manchester, C., Mcknight, K., Olson, L., Rogers, S. (2011). American Association of Diabetes Educators (AADE) Inpatient position statement. Retrieved from:

http://www.diabeteseducator.org/export/sites/aade/_resources/pdf/Inpatient_PS_2009.pdf

St Vincent Heart Center of Indiana (2011). Partnership for patients. Retrieved from:

<http://bestheartcare.com/2011/08/11/st-vincent-heart-center-of-indiana-joins-partnership-for-patients/>

Tomsky, D. (2011). Detection, prevention, and treatment of hypoglycemia in the hospital. *Diabetes spectrum*, Vo 18, no 1 39-44 Retrieved from: <http://spectrum.diabetesjournals.org/content/18/1/39.full>

U.S. Department of Health and Human Services (2011). Partnership for Patients, *Healthcare.gov*

Retrieved from: <http://www.healthcare.gov/compare/partnership-for-patients/safety/index.html>

Abstract Summary:

Hypoglycemia is a significant safety concern that can affect clinical outcomes. This quantitative research, using a prospective causal-comparative design, investigated the effect of education on the nurse's adherence to the hypoglycemic protocol and the incidence of hypoglycemia at one cardiovascular hospital. This evidence-based practice supports patient safety.

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- A. Summary
- B. Overview
- C. Discussion

D. Implications

6. Conclusions

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