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ORIGINAL ARTICLES

Temporal and Geographic Patterns of Hypoglycemia among Hospitalized Patients with Diabetes Mellitus

Rachel M. Bailon, M.D.,[1] Curtiss B. Cook, M.D.,[2] Michael J. Hovan, M.D.,[3] Bryan P. Hull, M.D.,[4] Karen M. Seifert, M.S.N.,[5] Victoria Miller-Cage, F.N.P.,[6] Karen A. Beer, P.A., C.D.E.,[7] Mary E. Boyle, C.N.P.,[7] Stephanie D. Littman, R.N.,[8] Janice M. Magallanez, R.N.,[8] Joanne M. Fischenich, R.D., C.D.E.,[9] Jana K. Harris, M.S.,[10] Susie S. Scoggins, B.S.[11] and Josephine Uy, B.S.[11]

Abstract

Background:

Hypoglycemia is often cited as a barrier to achieving inpatient glycemic targets. We sought to characterize hypoglycemic events in our institution by work-shift cycle and by specific treatment area.

Methods:

Capillary (bedside) and blood (laboratory) glucose values of <70 mg/dl for patients with either a known diagnosis of diabetes or with evidence of hyperglycemia were abstracted from our laboratory database for hospitalizations between October 1, 2007, and February 3, 2008. Hypoglycemic events were analyzed by 12 h nursing work-shift cycles (day shift, 07:00 to 18:59; night shift, 19:00 to 06:59) and by the six medical, surgical, and intensive care areas in the hospital (designated areas 1 to 6).

Results:

We identified 206 individual patients with either diabetes or hyperglycemia (mean age, 67 years; 56% men; 83% white) who had 423 hypoglycemic events. There were 78% more hypoglycemic events during the night shift (n = 271 events in 128 individual patients) than during the day shift (n = 152 events in 96 individual patients). Most of the night-shift hypoglycemic measurements were detected between 04:00 and 04:59 or 06:00 and 06:59. The mean hypoglycemic level was comparable between shifts (p = .79) and across the six inpatient areas. The number of hypoglycemic events per person increased with lengths of hospital stay >5 days. The prevalence of hypoglycemia varied across patient care areas within the hospital, with most (28%) detected in one area of the hospital.

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Author Affiliations: [1]Department of Internal Medicine, Mayo Clinic, Scottsdale, Arizona; [2]Division of Endocrinology, Mayo Clinic, Scottsdale, Arizona; [3]Department of Family Medicine, Mayo Clinic, Scottsdale, Arizona; [4]Division of Hospital Internal Medicine, Mayo Clinic, Scottsdale, Arizona; [5]Patient Health and Education, Mayo Clinic, Scottsdale, Arizona; [6]Nursing Administration, Mayo Clinic, Scottsdale, Arizona; [7]Division of Endocrinology, Mayo Clinic, Scottsdale, Arizona; [8]Division of Quality Management Services, Mayo Clinic, Scottsdale, Arizona; [9]Food and Nutrition Services, Mayo Clinic, Scottsdale, Arizona; [10]Pharmacy, Mayo Clinic, Scottsdale, Arizona; and [11]Division of Laboratory Medicine, Mayo Clinic, Scottsdale, Arizona

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Corresponding Author: Curtiss B. Cook, M.D., Division of Endocrinology, Mayo Clinic, 13400 East Shea Boulevard, Scottsdale, AZ 85259; email address cook.curtiss@mayo.edu

Abstract cont.

Conclusion:

There are temporal and geographic patterns in the occurrence of hypoglycemia among patients with diabetes or hyperglycemia in our hospital. Further study should focus on the reasons underlying these variations so that specific interventions can address the risk of hypoglycemia during peak times and places.

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