Hypoglycemia in hospitalized patients with diabetes: Incidence, timing, and associated nursing-related risk factors in a tertiary hospital

**Objective**: To identify the incidence and patterns of hypoglycemia and determine associated nursing-related risk factors in hospitalized patients with diabetes, informing targeted prevention strategies.

**Methods**: This cross-sectional study analyzed data from 24,679 inpatients with diabetes at a tertiary hospital (January 2023 – March 2025). Data on demographics, hypoglycemic treatments, and blood glucose monitoring (frequency, values, times) were extracted from Hospital Information System and Blood Glucose Management System Multivariate logistic regression identified factors associated with hypoglycemia.

**Results**: Overall, 5,968 hypoglycemic events occurred during 184,845 hospitalization days (3.23 events per 100 patient-days). Patients aged 70–79 years experienced the highest proportion of events (32.37%). Hypoglycemia was most frequent before breakfast (37.05% of events, reflecting nocturnal periods), followed by pre-lunch (13.57%) and pre-dinner (13.72%). Key independent predictors of hypoglycemia included: abnormal renal function (OR=5.6, 95% CI 2.8–11.3), impaired liver function (OR=2.5, 95% CI 1.3–4.7), insufficient energy intake (OR=4.2, 95% CI 2.1–8.4), delayed or improper management of a previous hypoglycemic event (OR=4.2, 95% CI 2.8–6.3), blood glucose monitoring <4 times/day (OR=1.9, 95% CI 1.2–3.0), intensive insulin therapy (OR=3.1, 95% CI 1.9–5.2), failure to adjust hypoglycemic therapy with changes in other treatments (OR=2.8, 95% CI 1.9–4.1), and fasting >12 hours (OR=2.8, 95% CI 1.6–4.9).

**Conclusion**: Hypoglycemia is common among hospitalized diabetes patients. Enhanced nursing vigilance and protocol adherence are crucial, particularly for elderly patients, those on intensive insulin, and during pre-meal and nocturnal periods. Findings underscore the need for proactive multidisciplinary management, including attention to renal/liver function, nutritional intake, and timely treatment adjustments.