Insulin initiation in the hospital associated with death, ED visits, readmissions in older patients

By **Acp Diabetes Monthly Staff**,
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Older patients who start insulin therapy in the hospital may be at higher risk for death, ED visits, and readmissions after discharge, according to a recent study.

Researchers in Ontario, Canada, performed a retrospective, population-based cohort study of hospital admissions between April 1, 2004, and Nov. 30, 2013, to determine whether older patients prescribed new insulin in the hospital have worse outcomes than those prescribed oral hypoglycemic agents. The study included patients who were 66 years of age and older.

The researchers categorized prescriptions at discharge as new insulin (no insulin prescribed before hospital admission), prevalent insulin (insulin prescribed before hospital admission), new oral hypoglycemic agent (neither oral agent nor insulin prescribed before hospital admission), and prevalent oral agent (oral agent prescribed before hospital admission). The study's primary outcome was death within 30 days of discharge; the secondary outcome was ED visits or readmissions in the same time period. The results were published Feb. 12 by the *Journal of General Internal Medicine*.

Overall, 104,525 patients were included in the study, 9,592 (9.2%) in the new insulin group, 25,2013 (24.1%) in the prevalent insulin group, 7,712 (7.4%) in the new oral agent group, and 62,018 (59.3%) in the prevalent oral agent group.

Within 30 days of discharge, 4,297 patients (4.1%) died and 27,382 (26.2%) had an ED visit or readmission. A total of 7.4% of patients in the new insulin group died, compared to 4.86% in the prevalent insulin group, 3.25% in the new oral agent group, and 3.45% in the prevalent oral agent group. The researchers adjusted for covariates and found that patients who were newly using insulin had a significantly higher risk for death (adjusted hazard ratio [HR], 1.59; 95% CI, 1.46 to 1.74) and ED visits or readmissions (adjusted HR, 1.17; 95% CI, 1.12 to 1.22) versus patients already taking an oral agent. These risks were also increased with prevalent insulin (adjusted HRs, 1.12 [95% CI, 1.04 to 1.21] and 1.15 [95% CI, 1.1 to 1.18], respectively) or a new oral agent (adjusted HRs, 1.26 [95% CI, 1.11 to 1.44] and 1.05 [95% CI, 1.00 to 1.10], respectively).

The authors noted that they could not be sure that new prescriptions filled at discharge were provided in the hospital, that they did not know whether patients with prevalent insulin or oral agent use had a substantial change in their regimen during hospitalization, and that data were missing on potential confounders, such as glycemic control, and follow-up patterns after discharge. However, they concluded that starting insulin therapy in older adults during hospitalization is associated with higher rates of death, ED visits, and readmissions within 30 days of discharge.

“While we could not determine causality between insulin and mortality, we highlight a vulnerable population which needs additional resources in the discharge transition period,” the authors wrote. “Further inquiry should determine appropriate interventions to reduce adverse outcomes after insulin initiation in older hospitalized patients, so that the benefits of effective diabetes management while in hospital are maintained when patients leave the hospital.”