Hypoglycemia Predicts Higher Mortality in CAP

BY KATE JOHNSON

MONTREAL — Patients with hypoglycemia at the time of hospitalization for community-acquired pneumonia have an increased risk of death, compared with patients with normoglycemia, according to a study reported at the World Diabetes Congress.

"Hypoglycemia is an easy-to-measure variable on admission, and should be a red flag to alert physicians to possible high-risk pneumonia patients," said John-Michael Gamble, of the University of Alberta (Edmonton).

Because an influx of community-acquired pneumonia (CAP) cases resulting from pandemic influenza A(H1N1) is expected in hospital intensive care units, quick recognition of high-risk factors is particularly important, Mr. Gamble said in an interview.

His prospective study included 956 CAP patients admitted to six Edmonton hospitals between 2000 and 2002, for whom random venous blood glucose tests measured 6.1 mmol/L or lower.

Hypoglycemia was defined as a measurement less than 4.0 mmol/L, and normoglycemia was defined as a measurement between 4.0 mmol/L and 6.1 mmol/L.

The primary outcome of the study was in-hospital mortality. Secondary outcomes included 30-day and 1-year mortality. The mean age of the patients was 65 years, and 15% resided in nursing homes.

Hypoglycemia was present at hospital admission in 54 patients (6%); among those patients, fewer than half (46%) were previously diagnosed diabetes patients.

The mortality rate was significantly greater at all time points among patients with hypoglycemia at admission, compared with normoglycemic patients, Mr. Gamble reported.

The in-hospital and 30-day mortality rates were both 20% for patients with hypoglycemia at admission, compared with 9% and 10%, respectively, in those with normoglycemia.

Similarly, at 1 year, patients with hypoglycemia at admission had a 35% mortality rate, compared with 25% in those patients with normoglycemia.

In addition to adjusting for age, sex, comorbidities, medication, and nursing home residence, the study adjusted for pneumonia severity index (PSI), smoking status, presence of advance directives, previous pneumococcal vaccine, and direct admission to the ICU. Several additional sensitivity analyses included clinical markers of physiologic stress, exclusion of patients admitted to the ICU, and exclusion of patients with diabetes.

Whether high or low, blood glucose abnormalities in general "may serve as a marker for sicker patients," commented Dr. Silvio Inzucchi, professor of medicine and clinical director of the section of endocrinology at Yale University, New Haven, Conn. Among nondiabetic patients, blood glucose abnormalities may be "particularly dangerous," Dr. Inzucchi explained in a separate presentation at the meeting.

Endocrinologists and intensivists are facing a "pendulum swing" regarding inpatient glucose control, Dr. Inzucchi noted, in light of a recent publication suggesting "very surprisingly" that intensive versus conventional control of hyperglycemia is associated with a 15-fold increase in hypoglycemia and significantly higher mortality (27.5% versus 24.9%) (N. Engl. J. Med. 2009;360:1283-97).

As a result, Dr. Inzucchi helped draft the recent American Association of Clinical Endocrinologists and American Diabetes Association Consensus Statement on Inpatient Glycemic Control, which recognizes the potential hypoglycemic risks of intensive control and recommends relaxing target blood glucose levels (Diabetes Care 2009;32:1344-5; Endocr. Pract. 2009;15:353-69).

"Specifically in the case of CAP, we need to look at the risks and benefits of treating admission hypoglycemia," Mr. Gamble commented.

Mr. Gamble said he had no conflicts of interest. Dr. Inzucchi declared paid lecturing with Novo Nordisk, an advisory board agreement with Medtronic Inc., research sponsored by Eli Lilly Co., and CME program participation in which Sanofi-Aventis was a funding source. ■