
Elevated Glucose Levels Predict Mortality in Pneumonia Patients

Non-diabetic patients who have elevated serum glucose levels when they are admitted to the hospital presenting community-acquired pneumonia (CAP) have an increased risk of dying within 90 days compared with normoglycemic patients with the same illness, suggest studies presented at the European Respiratory Society (ERS) 2012 Annual Congress in Vienna, Austria, on 2 September.

High serum glucose levels predispose people to CAP by increasing the risk for aspiration, decreasing immunity, and causing impaired lung function, a Community Acquired Pneumonia Competence Network (CAPNETZ) study has found.

The study, headed by Dr. Philipp M. Lepper from the University Hospital of Saarland in Homburg, Germany, evaluated whether acute dysglycaemia could predict a poor outcome in patients with CAP who had not been diagnosed with diabetes.

"Increased serum glucose levels at admission is a risk factor for death among patients with community-acquired pneumonia. The risk for mortality starts to increase when serum glucose levels are slightly increased but remain below the defined threshold for overt diabetes," Dr. Lepper explained. The study used data from 6,891 adults with CAP who were enrolled in the prospective CAPNETZ study from 2003 to 2009. Univariate and multivariable hazard ratios (HR) were adjusted for sex, age, body mass index, current smoking status, and CRB-65 (new onset of confusion; respiratory rate of 30 breaths/min or greater; systolic blood pressure of 90 mm Hg or less, or diastolic blood pressure of 60 mm Hg or less; and aged 65 years or older). CRB-65 is a clinical prediction rule that grades the severity of CAP in terms of 30-day mortality.

On multivariate analysis, it was determined that an elevated glucose level at hospital admission was an independent predictor of 28-, 90-, and 180-day mortality in CAP patients. In fact, increasing glucose levels corresponded to increasing risk for death from CAP.

The study did not establish a causal relation between glucose levels and increased mortality risk in patients with CAP. At the time of hospital admission, patients who had glucose levels from 6 to 11 mmol/l were considered to have mild acute hyperglycaemia and patients who had glucose levels of 14 mmol/l or more were considered to have acute hyperglycaemia. In all, 40% of CAP patients presented with hyperglycaemia. The majority (62%) of the patients were male, and average age was 60 years.

Patients with mild to moderate hyperglycaemia had a significantly higher HR for mortality at 90 days (1.55; 95% confidence interval: 1.18–2.04; $P < .001$) than patients with normal glucose levels at hospital admission. In patients presenting with acute hyperglycaemia, the HR increased to 6.04 (95% confidence interval: 4.18–8.74; $P < .001$).

"CAPNETZ is the largest trial to look at hyperglycemia as an independent risk factor for increased risk of death from pneumonia," said Dr. Lepper.

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