New Drug Gets Boxed Warning

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HYPERGLYCEMIA PREDICTS POOR OUTCOMES IN TPN

BY HEIDI SPLETE

Hyperglycemia caused by total parenteral nutrition is significantly associated with increased length of stay, risk of complications, and mortality, according to a study of 276 hospitalized adults.

Furthermore, the best predictors of death and complications in total parenteral nutrition (TPN) patients were blood glucose levels both before and within the first 24 hours of TPN, said Dr. Francisco J. Pasquel of Emory University, Atlanta, and his colleagues.

In this study, the researchers reviewed data from 276 consecutive patients at a single hospital. The average age of the patients was 51 years, and 19% had diabetes before entering the hospital. The patients received TPN for an average of 15 days, and most (65%) were surgical patients (Diabetes Care 2009 Dec. 29; doi: 10.2373/dc09-1748).

After the researchers controlled for age and diabetes history, mortality was significantly associated with a pre-TPN blood glucose level of 121-150 mg/dL, 151-180 mg/dL, or greater than 180 mg/dL. In addition, blood glucose within 24 hours of TPN was a significant predictor of mortality. Compared with patients who did not die, deceased patients had significantly higher blood glucose within 24 hours of TPN (162 mg/dL vs. 139 mg/dL) and during days 2-10 of TPN (161 mg/dL vs. 142 mg/dL).

Patients with blood glucose greater than 180 mg/dL within 24 hours of TPN were more than three times as likely to develop pneumonia and more than twice as likely to develop acute renal failure, compared with patients with blood glucose levels below 120 mg/dL. In addition, patients with higher blood glucose levels during TPN treatment spent significantly more time in both the ICU and the hospital compared with patients with lower blood glucose levels.

The results suggest that early intervention against hyperglycemia may improve outcomes for TPN patients.

“Our study indicates that blood glucose values prior to and within 24 hours of TPN are better predictors of hospital mortality and complications than the mean blood glucose during the entire duration of TPN,” the researchers said.

Major findings: TPN-induced hyperglycemia is associated with longer hospital stay, more complications, and higher mortality rates.

Data source: A review of 276 adult medical and surgical patients who received TPN at a single hospital.

Disclosures: Co-author Dr. Guillermo Umpierrez has received research support from the American Diabetes Association and the National Institutes of Health. The other researchers had no financial conflicts to disclose.

OCCULT CORONARY ARTERY DISEASE FOUND IN DIABETIC RETINOPATHY PATIENTS

BY MICHELE G. SULLIVAN

Up to a quarter of patients with diabetic retinopathy may have unrecognized stenotic coronary artery disease, putting them at risk for heart attack or sudden cardiovascular death, reported Dr. Takayuki Ohno and colleagues at the University of Tokyo.

The investigators found that 12% of patients attending a retinocoronary clinic had undiagnosed coronary artery disease. Diabetic retinopathy (DR) is present in 3 million Japanese citizens, they said, therefore, 363,000 of these people could have unsuspected heart disease.

“These estimates suggest that a large number of patients with DR would remain without diagnoses until a fatal coronary event,” they wrote.

To test this hypothesis, the researchers opened a diabet retinocoronary clinic in 2007. Patients with type 2 diabetes and DR who were getting outpatient ophthalmologic care were randomly referred to the clinic. There they were asked to undergo a cardiac screening, which included a cardiovascular history, physical exam, risk factor assessment, resting electrocardiography, and an exercise treadmill test. Patients who tested positive were asked to undergo a wall thickening scan or a coronary computed tomography scan. Those with abnormal results in this second tier of screening were approached for coronary angiography for further diagnosis.

Over an 18-month period, 286 patients were referred to the clinic; 214 were included in the study. Of these, 59 had nonproliferative DR and 155 had proliferative DR. Most patients (82%) were asymptomatic for cardiac problems; 12% had hypertension or lab findings. A total of 127 underwent an exercise tolerance test. The results were positive in 50 (29%) and nondiagnostic in 15 (9%). A total of 33 patients underwent exercise thallium scintigraphy, with abnormal results in eight (24%). A coronary CT was performed in 24 patients, 7 of whom (29%) showed atherosclerotic coronary artery disease. A total of 65 patients had a coronary angiography; 55 of these (26% of the entire cohort of 214) had angiographically confirmed stenotic coronary artery disease (CAD). Compared with patients without confirmed CAD, these patients were older (62 vs. 58 years) and more likely to have Q-wave or ST-T changes on resting ECG (47% vs. 21%, respectively). There were no significant differences in serum creatinine, hemoglobin A1c, or lipid levels.

During the clinic’s annual coronary conference, CABC was recommended for 17 patients, PCI for 25, and aggressive medical therapy alone for 13. So far, 12 have undergone CABC (including 3 for whom PCI was recommended) and 27 have undergone PCI. Three refused to have any type of coronary revascularization.

During the 288-day follow-up period, all patients have remained alive with no myocardial infarction. But eight (four in each intervention group), all of whom had proliferative DR, did experience the vision-threatening complication of vitreous hemorrhage. “Progression of (diabetic retinopathy) involving vitreous hemorrhage can take place spontaneously in diabetic patients after coronary revascularization with either PCI or CABC,” but little about its prevalence is known, the authors noted.