Severe Hypoglycemia Associated With Trimethoprim-Sulfamethoxazole Therapy

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Abstract: Hypoglycemia associated with sulfamethoxazole therapy in patients with chronic renal insufficiency has previously been documented. We report the case of an elderly patient with relatively normal renal function who developed severe hypoglycemia associated with trimethoprim-sulfamethoxazole therapy. (JABFP 1988; 1: 143-5.)

Severe hypoglycemia has been reported as an unusual adverse reaction associated with sulfamethoxazole therapy as well as other sulfonamides. Two previously reported patients had significant chronic renal insufficiency, but our report describes a patient without overt renal failure who developed severe hypoglycemia associated with sulfamethoxazole.

Case Report

An 88-year-old woman was seen in the emergency department for recurrent urinary tract infection secondary to an indwelling Foley catheter for longstanding urinary incontinence. Her other problems included a nonfunctioning right kidney (congenital), right hip prosthesis, anemia of chronic disease, and chronic back pain from osteoporosis. Her only medication was an acetaminophen-propoxyphene combination as needed for pain. A combination antibiotic containing 160 mg trimethoprim and 800 mg sulfamethoxazole (Bactrim DS™) was prescribed, one tablet twice a day, and she was discharged to her home.

Four days later, while eating lunch, the patient dropped her milk and overturned her plate. Her eyes rolled back, and she apparently had a seizure with tonic-clonic movements. En route to the hospital, ambulance personnel counted her heart rate in the mid-forties, with occasional ventricular premature beats. Her speech was garbled, but she was alert. A 5 percent dextrose solution was started at 40 mL/hr intravenously.

The initial exam revealed a chronically ill elderly woman with kyphosis, whose speech was unintelligible but who seemed alert. She was not oriented to time and place but had no other focal neurological findings. Her blood pressure, respiration, and pulse were stable. Cardiac exam revealed a slightly irregular rhythm at 55/min without murmur. A stat glucose was 33 mg/dL, and she was given 50 mL of 50 percent dextrose solution intravenously. Her mental status improved promptly, and the intravenous (IV) solution was subsequently changed to 10 percent dextrose in half normal saline.

During the next 24 hours, the patient’s glucose measurements dropped as low as 28 mg/dL, with most ranging from 40 to 90 mg/dL. Hypoglycemia persisted even though she received 270 grams of intravenous dextrose and approximately 1,000 calories of a regular diet. After 24 hours, the patient was maintained on 10 percent dextrose in half normal saline IV with blood glucose ranging from 126–200 mg/dL. The IV was discontinued at 72 hours, and the patient then maintained normal serum glucose.

After admission, the trimethoprim-sulfamethoxazole combination was discontinued. Blood and urine cultures were negative, and the patient received no additional antibiotics. Myocardial enzymes were not elevated, and subsequent electrocardiograms revealed no changes from admission except disappearance of the premature ventricular contractions and resolution of the bradycardia. During hospitalization, the patient’s mental status remained clear. The only medication she received on a regular basis was

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Moreover, there was no laboratory evidence of endocrinologic dysfunction, and the patient has not required hospital treatment in 13 months since the reported admission. Although serum levels of sulfamethoxazole were poor, and her glycogen stores were probably marginal. Although her creatinine was normal, her creatinine clearance was decreased, as would be expected in an 88-year-old person with only one functioning kidney. While the dose of trimethoprim-sulfamethoxazole was the standard dose for treatment of urinary tract infection, it may have been excessive for a chronically ill elderly woman with impaired renal function. Although serum levels of sulfamethoxazole were not measured in our patient, they were probably elevated, which could easily account for hyperinsulinemia and prolonged hypoglycemia.

Summary
An elderly patient was treated with sulfamethoxazole and developed severe and prolonged hypoglycemia. Previously reported cases involved...
individuals with significant decreases in renal function. This patient had relatively normal renal function as measured by BUN and creatinine, but there was an age-related decrease in creatinine clearance. Given the frequency of trimethoprim-sulfamethoxazole therapy, it seems appropriate to recommend decreasing the dosage for elderly patients with impaired renal function, and to call attention to hypoglycemia as a possible adverse reaction.

References