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Reply

As Dr. Massé pointed out in his other letters on this matter (1–6), workers in the United States are prone to make post hoc mass conversions to mM after lipids are calculated in mg/dl. This is indeed the case in our studies; therefore there is no error in our low-density lipoprotein (LDL) values. Our LDL values differ from his predicted values because group means cannot be interpreted in this manner. In addition, a correction has been made for the lipoprotein(a) content of the LDL particle to give a more accurate estimated LDL cholesterol value.

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Successful Treatment of Unusual Case of Brittle Diabetes With Sulfated Beef Insulin

Brittle diabetes has been defined as episodes of hypoglycemia or hyperglycemia that, whatever their cause, constantly disrupt a patient's life (1). Recognizable causes (1,2) of brittle diabetes are *1*) errors in management by either the patient or medical personnel (including overinsulinization), *2*) intercurrent illnesses, *3*) psychological problems, and *4*) factors influencing the dynamics of insulin action. Although the latter includes insulin-binding antibodies, they have previously been implicated to cause brittle diabetes either by very high titers of insulin-binding antibodies leading to marked hyperglycemia (not hypoglycemia) and clinical insulin resistance (requirement of >200 U insulin/day) (2) or their inability to buffer the egress of subcutaneously injected insulin into the blood stream (3). This report describes a woman on conventional doses of insulin in whom high titers of insulin-binding antibodies caused brittle diabetes (both hypoglycemia and hyperglycemia). Her brittle diabetes was successfully treated by substituting sulfated beef insulin.

A 25-yr-old female insulin-dependent (type I) diabetic patient with diabetes since age 1.5 yr was referred for help with erratic control of her diabetes. Although taking beef ultralente (10 U twice a day) and beef or pork regular insulin before each meal, the patient experienced erratic swings in her blood glucose measured by self-monitoring of blood glucose ≥4 times/day. Many glucose values would be >17 mM regardless of the time of eating or insulin administration. Alternatively, the patient experienced frequent (almost daily) episodes of hypoglycemia, either during the day many hours after taking insulin and/or in the middle of the night. Various human, pork, or beef (both standard and purified) insulin preparations did not seem to help either of these problems.

When first observed, the patient was taking 22 U beef ultralente insulin and 10 U human regular insulin before supper. She ate only at supper to avoid hypoglycemia that occurred at varying unpredictable times during the day if she took regular insulin in the morning. On this regimen, her blood glucose levels usually ranged near 17 mM on awakening and gradually fell during the day. However, she had lost 22 lb, felt generally tired and depressed, and if she ate during the day, would often experience nausea associated with marked hyperglycemia. This approach limited her hypoglycemic episodes to several times a week, occurring mostly in the early overnight hours.

Workup revealed elevated insulin-binding antibodies at 18.5 mU/ml (values >10 mU/ml are assocated with clinical insulin resistance) and a delayed peak response to human insulin given either subcutaneously (9 h) or intravenously (105 min). She was started on sulfated beef regular insulin before each meal and continued to take 22 U beef ultralente insulin before supper.