Standardization of IVGTT

Importance of method used to calculate glucose disappearance

Bingley et al. (1) correctly identified the importance to comparative (as well as longitudinal) research of consistent standardization of the protocol for the IVGTT. Their recommendations are reasonable and should receive further discussion followed by either modification or formal adoption by the ADA. We would, however, urge that the protocol be further amended to include identification of the samples to be used in determining the glucose disappearance rate (K_G) and the method of its calculation.

We previously examined IVGTTs from a wide range of rhesus monkeys (lean normal, insulin resistant, IGT, and overt type II diabetic) and have shown that significant and important differences can result simply from the means used to calculate the K_G (2). For monkeys, we established a recommended method for calculating the K_G based on two factors: *1*) the most linear portion of the glucose curve after a sufficient period for equilibration, and 2) ability to use the same time points in animals ranging from absolutely normal to severely diabetic. For monkeys, this is the 5–20-min time period. We urge that a similar analysis be conducted using consistently obtained data from humans who range widely in glucose tolerance in order to determine the optimum K_G calculation method for clinical studies.

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ADA, AMERICAN DIABETES ASSOCIATION; IVGTT, INTRAVENOUS GLUCOSE TOLERANCE TEST; K_G, GLUCOSE DISAPPEARANCE RATE; IGT, IMPAIRED GLUCOSE TOLERANCE; TYPE II DIABETES, NON-INSULIN-DEPENDENT DIABETES MELLITUS.

References

1. Bingley PJ, Colman P, Eisenbarth GS, Jackson RA, McCulloch DK, Riley WJ, Gale EAM: Standardization of IVGTT to predict IDDM. *Diabetes Care* 15:1313–16, 1992
2. Jen K-LC, Hansen BC: Glucose disappearance rate in rhesus monkeys: some technical considerations. *Am J Primatol* 14: 153–66, 1988

Depression in Adults With Diabetes

A recent article in this journal (1) stated that ". . . data to support convincingly a theory that prolonged depressive episodes result from glucose dysregulation are yet unavailable." I agree that convincing data indeed has not yet appeared. My experience with diabetic individuals who have been taught to achieve virtually normal blood glucose suggests to me, however, that for at least a significant subset of IDDM patients, glucose dysregulation can indirectly cause depression.

An analysis of interviews with previously depressed patients who were able to attain essentially normal blood glucose has been described in my previous publication (2). Abstracts of some of their comments follow:

"I became a person again. I am now in control of my life."

"I am coming to life again. . . and I'm not afraid of insulin reactions."

"For me, the pain came. . . from not knowing what my body was doing, or how to treat it correctly."

"The fatigue, frustration, and all the problems that went with it are gone."

"For 25 years, I felt as if I were on a rudderless ship, allowing my body to deteriorate. I'm truly better now both mentally and physically. For the first time, I feel in command of my life."

Virtually all of the individuals interviewed cited at least two of the DSM III-R(3) criteria for a diagnosis of depressive neurosis before achieving blood glucose control.

In summarizing these and other comments, the 1984 article cites the major concerns of patients before regulation of their blood glucose as "the fear of the unknown (hypoglycemia, long-term complications, impaired offspring, never knowing blood glucose level, etc.) and the total inability to control it. . ."

In 1980, Oehler-Giarratana and Fitzgerald listed the 25 topics most commonly discussed by diabetic individuals who were going blind and had entered group psychotherapy (4). Blindness was the second most frequently discussed topic. Diabetic control was number one.

In summary, it seems reasonable, but certainly not proven, that chronic exposure to the seemingly random metabolic fluctuations of IDDM plus the ominous threat of long-term sequelae invite depressive neurosis when combined with helplessness. Controlled studies of the long-term effect on depression of giving patients the knowledge and tools to normalize their glycemic states are certainly warranted.

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