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Are Young Age and Insulin Treatment Enough to Diagnose IDDM?

In a paper recently published in *Diabetes Care*, V.A. Koivisto et al. (1) addressed the issue of cardiovascular disease in IDDM patients in Europe. The study was based on cross-sectional data from 16 European countries (EURODIAB IDDM Complications Study) (2). The target population was all individuals with IDDM in the participating centers. The eligibility criteria were an age range of 15–59 years, a diagnosis of diabetes before 36 years of age, and unbroken record of insulin treatment.

We have published in a recent issue of *Diabetes Care* (3) our experience with IDDM in adults in a community-based study in Israel. To determine the clinical characteristics of insulin-treated NIDDM and IDDM diabetic patients, we examined all known insulin-treated diabetic patients from three community clinics (registered population, 9,573 adults). Fasting plasma C-peptide levels were measured in all insulin-treated patients; insulinopenia was diagnosed when plasma C-peptide was <0.132 nmol/l. A total of 588 diabetic patients were found, 100 of whom were insulin-treated; of those, only 25 were insulinopenic. The mean ages (range) of the IDDM and NIDDM groups were 49.5 (24–75) and 62.0 (29–86) years, respectively; the mean ages at diagnosis of diabetes were 26.9 (4–60) and 46.9 (17–73) years, respectively. Moreover, 43% of the IDDM patients were diagnosed at ≥36 years of age, whereas 22% of the insulin-treated NIDDM patients were diagnosed at ≤36 years of age. Interestingly, only 66% of our insulinopenic patients received insulin as a first treatment, while 21% of insulin-treated NIDDM patients received insulin as a first treatment.

If our patients were to be classified according to the EURODIAB inclusion criteria, 43% of the insulinopenic IDDM patients would be excluded, and 22% of the insulin-treated NIDDM patients would be included in the IDDM group. Since most insulin-treated patients, at least in our study, actually had NIDDM (3), it is possible that a large number of patients included in the EURODIAB study were insulin-treated NIDDM patients. Also, Laakso and Pyörälä (4), who studied insulin-treated patients in Scandinavia, found that 50% of insulin-treated patients were positive for endogenous insulin secretion.

Thus, the measurement of endogenous insulin secretion capacity in insulin-treated patients is of great value to differentiate between IDDM and insulin-treated NIDDM individuals. Despite the added technical burden and the increase in cost, fasting plasma C-peptide measurements should be included in large epidemiology studies dealing with IDDM.

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Reply to Maislos and Weitzman

Maislos and Weitzman (1) criticize the definition of IDDM used in the EURODIAB study, suggesting that this could result in diagnostic misclassification. It is clear that there is no one universally accepted diagnostic test that will completely differentiate between IDDM