Prediction of Diabetes Using Serum C-Peptide

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Type 2 diabetes is generally regarded as an irreversible disease, and considering its effects on complications, prevention of diabetes is very important. Fortunately, type 2 diabetes is a preventable disease [1], and therefore the prediction of diabetes in high risk persons is a key issue. Such a prediction would be based on several genetic and environmental factors as well as insulin secretory capacity [2,3], because if the insulin secretion is enough to compensate for other risk factors, diabetes would not develop [4].

In this issue of *Endocrinology and Metabolism*, Kim et al. [5] suggested that C-peptide would be more effective in the prediction of diabetes compared to insulin. Among 140 adults without diabetes at baseline, 20% became diabetic during a mean follow-up of 55 months, and among the baseline examinations, C-peptide increase by glucose loading—which the authors referred to as the "C-peptidogenic index"—was the most predictive and independent index for future diabetes. Most previous studies have used serum insulin for the estimation of insulin secretion in the prediction of diabetes [2-4]; however, according to this study by Kim et al. [5], C-peptide measurement would be superior, especially during oral glucose tolerance tests. In addition, there is a report that the C-peptide based index was more closely correlated than the insulin-based index with β-cell mass in humans [6].

These findings that C-peptide is more related with β-cell mass and function than insulin might be a result of C-peptide metabolism being less vulnerable than insulin and more reproducible with lower variations [7,8].

Although this study was performed as a retrospective design, it is worth paying attention to the results because of the increased prevalence of prediabetes worldwide. Further investigation in large cohort as a prospective design would be needed to establish more accurate tools for the prediction of diabetes.

CONFLICTS OF INTEREST

No potential conflict of interest relevant to this article was reported.

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