

### Evaluation of C-Peptide Radioimmunoassay for Clinical Applications

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Serial changes in C-peptide (CPR), serum immunoreactive insulin (IRI) and blood sugar levels in the sera were studied following administration 50 g glucose to normal subjects and diabetic patients.

Thirty normal subjects and 43 diabetic patients, 20 patients with mild glucose intolerance, 10 moderate diabetics and 13 severe diabetics, were used for this studies.

The serum concentration of C-peptide (CPR) was determined by radioimmunoassay using a commercial Kit which was a gift of Daiichi Radioisotope Laboratory. Serum immunoreactive insulin (IRI) levels in the serum was also assayed by means of double antibody radioimmunoassay using a commercial insulin RIA Kit. Blood glucose was determined by using an autoanalyzer.

The C-peptide radioimmunoassay was sensitive to as little as 0.2 ng per ml of C-peptide. No effects was observed when insulin preparations were assayed.

Serum C-peptide concentrations in normal subjects were  $3 \pm 1.1$  ng/ml (mean  $\pm$  S.D.) which rose to  $7.6 \pm 2$  ng/ml 60 minutes after administration of 50 g glucose orally. Delayed and lower response to 50 g OGTT were observed in severe diabetics as a  $2.2 \pm 1.2$  ng/ml which rose to  $4.2 \pm 1.3$  ng/ml 180 minutes after administration.

There were in good agreements between CPR and IRI responses to 50 g OGTT in sera from normal subjects and diabetic patients. It is noticeable that the CPR responses to 50 g OGTT were observed in a 5 diabetic patients with an anti-insulin antibody in the serum.