Evaluation and Clinical Application of CPR Radioimmunoassay Kit

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With the purpose to investigate clinical usefulness of measurement of blood CPR level, a new RIA kit was evaluated.

Materials and Methods: Serum glucose, IRI and CPR were measured after oral administration of 50 g glucose in 42 subjects including 6 healthy volunteers (group I). The patients (group II) were classified into 4 subgroups: (A) 6 patients with normal pattern of OGTT, (B) 7 with borderline pattern, (C) 10 with DM pattern (FBS<150 mg/dl), (D) 6 with DM pattern (FBS>150 mg/dl). In addition 7 patients treated with insulin either at present or in the past (group III) were studied.

Results: The basic evaluation of CPR kit revealed, within assay error 4–10% (m 6.4%) in C.V., between assay error 3.83±0.78 ng/ml (n=9, C.V. 20%), recovery rate 118.9±11.9%. No cross reaction was observed with human insulin. In group 1, CPR level reached the peak (6.50±2.24 ng/ml, m±1 S.D.) at 30 minutes followed by rapid decline to the fasting level (2.88±1.29 ng/ml) at 180 minutes. The CPR curves paralleled the IRI curves. No significant difference in fasting CPR level was observed among group 1, II-A, II-B and II-C. Group II-A and II-B showed peak at 60 and 90 minutes respectively, while IRI curves had peaks at 30 and 60 minutes. Group II-C revealed delayed peak at 120 minutes (6.29±1.91 ng/ml). Group II-D showed low fasting CPR level (1.93±0.98 ng/ml) and flat curve without appreciable peak. The fasting CPR level in a juvenile diabetic patient under insulin treatment was remarkably low (less than 1.0 ng/ml) in spite of relatively high IRI, which suggests that CPR level reflects the true β-cell function in the pancreas.