

IPEN-DOC- 3358

A B S T R A C T

RADIOIMMUNOLOGICAL DETERMINATION OF FREE, TOTAL INSULIN AND C-PEPTIDE IN INSULIN TREATED DIABETICS.

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A simplified method for measuring free, total and C-peptide in insulin treated diabetics circulating insulin antibodies was studied. The free insulin and C-peptide were extracted from the plasma with a 25 per cent PEG solution (polyethylene glycol Carbowax 6000). Total insulin was extracted from the plasma with 25 per cent PEG solution after dissociation of the antibody-antigen complex with dilute HCl. Aliquots of the extracts were used in the insulin and C-peptide radioimmunoassay systems. The samples were collected prior (0) and up to 3 hours (30,60,90,120,180 minutes) after glucose load in 8 non diabetics, 4 maturity onset diabetics and 4 maturity onset dependent diabetics. In normal controls basal insulin values were between 0.012 to 0.087 pmol/ml and C-peptide concentration ranged between 0.10 and 0.33 pmol/ml. After the administration of glucose C-peptide levels tended to remain elevated after the correspondent insulin ones had greatly decreased. In maturity onset diabetics on chlorpropanide (CP) the patients had normal insulin but not C-peptide responsiveness to glucose load. In maturity onset insulin dependent diabetics basal C-peptide levels were at the lower limit of sensitivity of the assay and no response to either glucose could be detected. The C-peptide assay had opened up the possibility of continuously monitoring beta cell during the evolution of the diabetic syndrome irrespective of the mode of therapy