Radioimmunoassay of Human Prolactin

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We have already reported on the results of human prolactin assay at the Endocrine Meeting, April, 1973, using the human prolactin and its antiserum given by Dr. H. G. Friesen. We report here on the investigation of crossreactivity of human, sheep and pig prolactin. Using anti-human prolactin, prolactin reacted in the order of human, sheep and pig. The same order was shown for the displacement. When anti-human prolactin, $^{125}$I-sheep prolactin were used, the displacement was similar with human and sheep prolactin. Using anti-sheep prolactin, and labeled human, sheep, pig prolactin, the results showed on good displacement as the assay system of human prolactin.

Radioimmunoassay of Human Prolactin (HPr)

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A sensitive radioimmunoassay for human prolactin (HPr) was developed with highly purified HPr and antibodies to HPr (kindly supplied by Dr. H. Friesen). HPr (Friesen 71-9-4) was iodinated with $^{125}$I to specific activities of between 130 and 200 $\mu$Ci/$\mu$g by a modified chloramin T method of Greenwood et al and also used for standards in these studies. The double antibody technique was used to separate bound and free labelled hormones. The parallelism was observed among the inhibition curves of the standard HPr and those of sera obtained from a patient with Forbes-Albright syndrome and a pregnant woman. Human GH, TSH, ACTH, LH and FSH showed no significant cross-reactivity in the assay. No cross-reactivity with rat or porcine prolactin was demonstrated. Ovine prolactin cross-reacted but given a non-parallel inhibition curve. The minimal detectable HPr value was 1–2.5 ng/ml. The average coefficient of variation was 9.4% in different assays.

Basal levels of plasma HPr in normal subjects were less than 30 ng/ml and 90% of them were under 20 ng/ml. The mean ($\pm$SE) basal HPr levels in 32 normal subjects was 11.4 ± 1.3 ng/ml. No significant sex difference was observed. Elevated levels of plasma HPr were demonstrated in some patients with chromophobe adenoma, ectopic pinealoma, histiocytosis X, HPr producing tumor, hypothyroidism and galactorrhea due to drugs. Plasma HPr levels were normal in most of the patients with acromegaly. Plasma HPr was detectable in some patients with pituitary dwarfism (including isolated GH deficiency) and panhypopituitarism. Synthetic TRH (500 $\mu$g iv), chlorpromazine (25 mg im), insulin (0.1 U/kg iv), arginine (0.5 g/kg iv) and 5-HTP (200 mg po) caused a significant increase in plasma