

Iodination of Peptide Hormones

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Porcine and human ACTH, human growth hormone and porcine insulin were iodinated with ^{131}I and ^{125}I according to the chloramine T method. The original iodination mixture was taken for paper strip chromatoelectrophoretic analysis. The yield of iodination (percentage of undamaged labeled hormone plus damaged labeled hormone) and the percentage of alteration (damaged labeled hormone plus unreacted iodide) of iodination mixture were not significantly different by increasing the amount isotope used. They varied presumably due to variations in the different batches of iso-

tope. ^{125}I -labeled hormone showed low yield and high alteration in comparison with ^{131}I -labeled hormone. Similar results were obtained by porcine and human ACTH, human growth hormone and porcine insulin.

The percentage of alteration of purified labeled hormone assessed by chromatoelectrophoresis was less than 10% in most preparations even if they had significant alteration in original iodination mixture.

Labeled porcine lysine vasopressin and α -MSH were purified with QUSO G32 as well as labeled ACTH.

Clinical Application of Radioimmunoassay in Obstetrical and Gynecological Field

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Radioimmunoassay of FSH, LH, HCG and HPL had been used for the clinical purpose, and the following results were obtained.

The change in serum FSH and LH levels in relation to age were studied in 104 female subjects. At puberty, increase of serum LH was most prominent finding, that is, LH jumped up from 2.8 mIU/ml in age 9-12 to 10.9 mIU/ml in age 13-16. Fructuation of hormones during normal menstrual cycle was as follows; LH had a midcycle peak with a mean value of 96.5 mIU/ml. FSH also had a small peak at midcycle reached to 15.7 mIU/ml, and the mean value of follicular phase (6.2 mIU/ml) was significantly higher than that of luteal phase (3.4 mIU/ml). In three cases of anovulatory cycle, LH failed to show a midcycle peak and had a small peak on 3 to 4 days before the onset of menstruation. Serum FSH and LH levels of postmenopausal women were 5 to 11 times higher than the level of menstruating women.

Serum level of FSH during normal pregnancy was significantly lower than the value of non-pregnant women in the same age. One hundred μg of synthetic LH-releasing hormone increased the concentration of both LH and FSH in serum.

The change of serum HCG levels was determined in 89 normal pregnant women. The peak (28-90 IU/ml) was found between 8th and 15th week of gestation. The HCG stayed at constant level (2-33 IU/ml) during the rest of gestational period. HCG assay was especially useful for the follow up of the patient with trophoblastic disease.

Serum HPL levels in 64 normal pregnant women were determined. The concentration increases lineally from the beginning (0.3-2.0 $\mu\text{g}/\text{ml}$) toward the end of pregnancy (8-28 $\mu\text{g}/\text{ml}$). It was found that HCG/HPL ratio in molar pregnancy were far greater than in normal pregnancy. This fact could be used for the diagnosis of hydatidiform mole.