S. Work in progress

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CLINICAL EVALUATION OF N-ISOPROPYL-p-IODO-AMPHETAMINE (I-123)(IMP) IN CEREBRAL VASCULAR DISEASE (CVD).
M.Yoshimura, H.Yamada, H.Seta (Sales Dept.), O.Ito, N.Ueda and M.Hazue (Research & Development Sec., Technical Dept.), Nihon Medi-Physics Co., Ltd., Takarazuka.

IMP, which was developed by Winchell et al (Medi-Physics, Inc.), is a radiopharmaceutical for the evaluation of regional cerebral blood flow (rCBF). The clinical usefulness of IMP was investigated in the diagnosis of CVD. The results showed IMP's usefulness in many neurological conditions: 1) Detection of rCBF abnormalities in the patients with acute cerebral infarction, in which X-ray CT scan is normal, or in those with transient ischemia without irreversible necrosis. 2) Detection of the lesions relating to the clinical symptoms which can not be explained by X-ray CT finding. 3) Visualization of ischemic penumbra, luxury perfusion or remote effect such as crossed cerebellar diaschisis. 4) Application of the surgical intervention such as STA-MCA anastomosis and documentation of its effectiveness. 5) Quantification of rCBF. The rCBF values obtained by IMP using arterial sampling method correlated well with those by PET not only in normal region but also in ischemic regions of the patients with infarction. The reproducibility of the estimated values also was good.

IMP provides neuropathological information which is quite useful in the diagnosis of CVD.

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BASIC INVESTIGATION OF HIGH SENSITIVITY RADIOIMMUNOASSAY KIT FOR MEASUREMENT OF ACTH.
M.Takahashi, T. Shiomi, Y.Kazahaya, K.Izaka and E.Hasegawa. Radioisotope Division, Green cross Corporation, Tokyo.

In recent years, the measurement of ACTH in blood with radioimmunoassay is routinely determined and its clinical usefulness has been confirmed. CIS ACTH radioimmunoassay kit is direct assay dispensing extraction procedures and can measure wide ACTH range (up to about 2,000 pg/ml), but it is desired to be able to measure low level ACTH. This time we got the high sensitivity RIA kit of ACTH from CIS, and gave basic investigation. This kit is RIA kit based on double antibody method and consists of I-125 labeled ACTH, andibody, standards, 2nd antibody and buffer.

Plasma sample required 0.1 ml with this kit. It got to plateau about 18 hours for first incubation, 5 minutes for second incubation at 2 - 8 °C. Coefficient of variation for intra and inter-assay on six standards were 1.4 - 5.1 % and 1.1 - 11.2%, and on three control plasma pools were 3.9 - 7.9 %. The sensitivity was less than 10 pg/ml. The mean recovery ratio was 102.4%, and the dilution test resulted in a good linearity.

CIS new ACTH RIA kit was simple technique, and the sensitivity and reproducibility showed a good result, so this kit was very useful for determined low level ACTH.

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FOUNDAMENTAL EVALUATION OF RADIOIMMUNOASSAY (RIA) KIT FOR DETERMINATION OF CA15-3 ANTIGEN ASSOCIATED WITH BREAST CARCINOMA.
S.Fujioka, Y.Kiya and Y.Saito. Toray-Fuji Bionics,Inc.

A radioimmunoassay(RIA) method for determination of CA15-3 antigen associated with breast carcinoma has been established. In this RIA kit two monoclonal antibodies, 115D8(Hilkens et al,1984) as the catcher and DF3(Kufe et al,1984) as the tracer antibody, are used. Monoclonal antibody 115D8 is reactive with human milkfat globule membranes as antigen active center. While DF3 is reactive with a membrane-enriched fraction of human breast carcinoma. The principle for determination of CA15-3 antigen is based on 2-step sandwich radioimmunoassay method by using patient's serum. In this presentation we will report that reliability of this RIA kit which was confirmed by the reproducibility,the recovery test and the cross reactivity by addition of CA19-9 and CEA antigens to the reaction mixtures. Data less than 10% in coefficient value were obtained in the reproducibility tests. It was also confirmed that CA19-9 and CEA antigens were not interfering substances to the antigen-antibody reaction of CA15-3. Accordingly, it is concluded that anti CA15-3 antibody has the specificity and the sensitivity for CA15-3 antigen.

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RADIOIMMUNOASSAY OF FREE THYROXINE IN SERUM.
S.Tsutsumi,S.Nagase,M.Ito,K.Ishibashi and R.Osawa.Eiken Immunochemical Laboratory, Tokyo.

We developed a new solid phase radioimmunoassay of double-antibody method for measurement of free thyroxine(FT_4) in serum. The method described in this report employed the conjugate of [^{125}I]T_4 and human chorionic gonadotropin(HCG), in which free acid form of L-thyroxine was coupled with HCG by means of glutaraldehyde. The conjugate was labelled with ^{125}Iodide by lactoperoxidase method. Sample containing FT_4 is incubated together with [^{125}I]T_4-HCG, rabbit anti-T_4 serum and polystyrene bead coated with goat anti-rabbit IgG. After 2h. incubation at 37°C, polystyrene bead was washed and ^{125}I content of the tube was measured. The major advantage of this method is that serum albumin and TBG do not interfere with the assay system. Less than 0.2 pg of FT_4 could be detected with this method. Possible range of measurement of FT_4 in serum was from 0.2 to 12.8 ng/dl. Mean variances expressed in C.V. in intra and inter assays were 7.8 and 8.3% respectively. FT_4 concentrations in sera from normal adults assayed by this method were found to be distributed from 0.8 to 1.92 ng/dl having mean value of 1.32 ng/dl(n=93); in case of hypothyroidism 0.16 to 0.57 ng/dl; in hyperthyroidism 3.68 to 15.6 ng/dl(n=27); in pregnancy 0.9 to 1.86 ng/dl(n=5).