good (C.V. = 13.7%). In the 10-months pregnant women, serum estriol concentration was 13.9 ± 8.9 (SD) ng/ml. From the result, we concluded that radioimmunoassay of serum T3 and estroil using the RIA kits (Ames Company) would be sufficiently usable and promising ones.

**Experimental Study on Detoxication of Hepatitis B Surface Antigen (HBs-Ag) in Reference to Radioactive Waste Disposal**

Keiko IMAZEKI, Takemi MIYOSHI, Noboru ARIMIZU, Guio UCHIYAMA and Teruyoshi NOGUCHI  
Department of Radiology, Chiba University Hospital Chiba

Small medical apparatuses directly contacted with human blood possessing hepatitis B surface antigen (HBs-Ag) have potential sources involving viral hepatitis to a person handling them.

The authorized agency responsible for radioisotope waste disposal in Japan usually refuses handling and collections of any materials directly referred to human blood, if special antiviral procedures have not previously taken against HBs-Ag, because they are afraid of infection of viral hepatitis.

The objective of the study is to investigate effective and practical methods of chemical detoxication of HBs-Ag which is involved in small apparatuses used in nuclear medicine. 0.5 to 5 ml plastic syringes were used as small apparatuses in the study. The inner surfaces and needles were contaminated with HBs-Ag by means of putting 0.5 to 1 ml of HBs-Ag positive human blood into the syringe. Then, the inner surfaces and needles were rinsed away with 1 ml solution of saline or of following disinfectants of various concentration; NaClO, PACOMA*, IRGASAN-DP300* HIBITANE*, alcoholic glutar-aldehyde or CLEAN 99L* (*abbreviates trade marks). The detoxication of HBs-Ag was examined by radio-immunoassay with AUSRIA-II kits on 0.2 ml of rinsing solution above mentioned.

The results of assay showed that 10000 PPM NaClO and 2.5% alcoholic glutar-aldehyde were the most effective, completing detoxication in short time; 0.5% IRGASAN-DP300 and 5000PPM NaClO did effective in a certain condition alone or less effective; and PACOMA, HIBITANE and CLEAN 99L did not effective.

**Measurement of Serum Digoxin Using Digoxin 125I Radioimmunoassay and Its Clinical Application**

Kiyohiro IKEDA*, Tsuneo ASAKI*, Tatsumi UCHIDA*, Fukumi TSUDA*, Shigeo KARIYONE* and Masaru SAITO**  
*First Department of Internal Medicine, **Laboratory of Radioisotope, Fukushima Medical College, Fukushima

Digoxin is the most widely prescribed cardiac glycoside in order to control of congestive heart failure and certain abnormalities in the cardiac rhythm. Measurement of serum levels of digoxin is important in the clinical management of patients receiving this drug.

Recently, the Digoxin 125I-Imusay kit® was provided by Abbott Laboratories. Fundamental problems on performing this assay systems was investigated and its clinical usefulness was evaluated.

Standard curve was shown quite linear with rapid decline on linear scale during 0.0 to 2.0 ng/ml of digoxin concentration. Per cent bound was increased from 0 to 60 minutes at incubation and it reached plateau after 60 minutes. The temperatures during the assay were tested at 4°, 17°, 25°, and 37°C, respectively. Then the most precise condition for the assay was obtained at 25°C. Coefficient of variation in within-assay was 9.5% and the
Mean recovery rate of added digoxin ranged from 0.0 to 2.0 ng/ml was 105.9%. Fifteen serum samples obtained from patients under digoxin administration were determined by two different kits. An excellent correlation (r=0.941) was obtained from these two values. Two ml of 18% P.E.G. was added on the same samples in order to separate the B and F, then each samples were centrifuged after 1, 5, 10, and 20 minutes, respectively. There were no significant differences between these resulted values. The recommended P.E.G. volume seemed to be 2.0 ml for each assay tubes.

Serum levels of digoxin reached to peak during 1 or 2 hours after oral administration. The relationship between the digoxin levels in serum and the various function was examined which were obtained by mechanocardiogram or dye dilution method. There were significant correlation partially, between the digoxin levels and heart rate, ejection time, mean transit time, cardiac index, or stroke index, respectively.

**Measurement of Plasma Aldosterone by a Simplified Radioimmunoassay Using ^125^I-Aldosterone**

Hiroshi ShiNooRI*, Yoshimi OnO**, Teizo ItoH*** and Takashi SUZUKI***

*The Second Department of Internal Medicine, Yokohama City University
School of Medicine

**Department of Radiology, Yokohama City University of Medicine

***Japan Self Defence Force Central Hospital, Tokyo

We previously described a simple method for the measurement of plasma aldosterone by radioimmunoassay omitting the chromatography—an extraction method—(Clinical Endocrinology 25:673, 1977).

In order to evaluate a new simple direct radioimmunoassay method not employing the extraction step for determination of plasma aldosterone, a critical comparison was made between a previously reported extraction method and a new direct method without extraction. For the former method, an Aldok-kit (CEA-IRE-SORIN), and for the latter method an Aldosterone-R1A kit (Dinabot RI Labo.) was used as indicated in the instruction manual. ^3^H-aldosterone was used as a tracer for the former method and ^125^I-aldosterone for the latter. The specificity of antibodies, compared using several steroids, was very high for both antibodies employed.

Intra-assay variations were 8.8% by the extraction method (CIS) and 7.6% by the direct method (Dinabot). Plasma aldosterone determinations were well correlated (r=0.98, Y=1.08X+0.77, n=50. Y stands for the extraction method and X for the direct method.)

Plasma aldosterone concentrations by the new direct method in normal subjects were 6.5±3.1 ng/100 ml, in the patients with essential hypertension 7.5±3.9 ng/100 ml, in primary aldosteronism 43.1±10.5 ng/100 ml, in renovascular hypertension 17.9±6.5 ng/100 ml, in pseudo-aldosteronism 2.2±0.5 ng/100 ml, and in SIADH 2.1±0.4 ng/100 ml.

From these results it was concluded that the new direct method was a very useful, simple, speedy, and reliable method for measuring plasma aldosterone, and there was no need to use a liquid scintillation counter.