Measurement of Plasma Testosterone by Solid Phase Radioimmunoassay with Microtiter Tray

H. Hosogi, N. Ogawa and T. Ofujii

Third Department of Internal Medicine, Okayama University, Medical School, Okayama

A method of solid phase radioimmunoassay with microtiter tray was investigated to simplify the radioimmunoassay of plasma testosterone and to measure many samples at the same time, and satisfactory results were obtained. Standard testosterone or extracted samples which had been dissolved by borate buffer containing \(^{3}\)H-testosterone were incubated in cups of the disposable plastic microtiter tray precoated with diluted antiserum. After removal of the incubated solution, cups were cut and dissolved by toluene scintillator in counting vials, and radioactivity was counted with liquid scintillation counter.

In 7.0–8.0 pH, the maximal absorption of antibody from diluted antiserum by surfaces of microtiter tray was obtained. In order to obtain the best standard curve, precoating time and incubation time required for 24 hours at room temperature, respectively.

Accuracy, precision and sensitivity in this method were satisfactory. Close correlation were founded between plasma testosterone levels obtained from this method and that from dextran coated charcoal separation technique. Although moderately high concentration of antisemur was needed, in this method that antisemur was able to recover and re-use. The plasma testosterone level in 31 normal male was 687.1±48.3 (SE) ng/dl, and in 14 normal female was 46.08±4.3 (SE) ng/dl.

According to the results obtained above this method is suitable for radioimmunoassay of plasma testosterone.

Radioimmunoassay of Serum Testosterone

K. Isurugi and K. Fukutan

Department of Urology, the University of Tokyo, Branch Hospital, Tokyo

K. Wakabayashi

Hormone Assay Center, Gunma University School of Medicine, Maebashi

A simple and rapid method for radioimmunoassay of serum testosterone was presented. One tenth ml of serum for male adults or 1 ml for females and prepubertal children were extracted 3 times with 4 volumes of ethylether using a dry-ice acetone mixture. The dried extract in each tube was dissolved in 1 ml of 1% bovine serum albumine (BSA) in 0.01 M phosphate buffered saline (PBS, pH 7.5) and a 200 \(\mu\)l aliquot of the solution was added with 200 \(\mu\)l of anti-testosterone-3-carboxymethyl-BSA and 100 \(\mu\)l of tritiated testosterone (approximately 3000 cpm).