METHOD AND MATERIALS

$\beta_2$-microglobulin was measured by the Phadebas $\beta_2$-microtest in 96 patients involving 18 normal cases and 202 samples. The ninety-six patients involved 12 renal cell cancers, 17 hydronephrosis, 14 pyelonephritis, 18 bladder and prostate cancers, 10 benign prostate hypertrophy, 6 polycystic kidneys and 1 acute renal failure. Urine samples were diluted 5 times and serum samples were diluted 120 times before assay. The urine samples, with PH adjusted to 4.0 to 8.0, were measured separately and samples of various grades of hematuria were measured.

RESULTS AND CONCLUSION

When urinary PH was below 5.5 the $\beta_2$-microglobulin level was considerably low due to degradation. The urinary $\beta_2$-microglobulin level was not influenced by hematuria up to 1/5 volume percent. The mean values for normal urine and serum samples were 119.9 and 1068.2 respectively. Serum $\beta_2$-microglobulin showed good correlations with serum creatinine ($r=0.938$), but correlations with blood urea nitrogen ($r=0.694$) were not good. In this series, the serum $\beta_2$-microglobulin had no particular significance in urogenital cases which had normal renal function, but in renal failure, the serum and urinary $\beta_2$-microglobulin levels increased extremely. In 10 out of the 12 renal cell cancer patients, the urinary $\beta_2$-microglobulin level increased slightly and the serum $\beta_2$-microglobulin also tended to rise.

Prostatic Imaging Using $^{99m}$Tc-Pertechnetate

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It is importance to know the size of the prostatic gland for the diagnosis and treatment of prostatic hypertrophy (BPH) and carcinoma. Palpation and roentgenographic techniques such as urethrography and prostatography, and recently ultrasonic tomography have been used for investigating the size of the prostate. However all of these have their advantages and disadvantages. Prostate imaging, by scinticamera using $^{69m}$Zn and other scanning agents, have been tried, but results are not gratifying. Our recent imaging technique using $^{99m}$Tc-pertechnetate has brought almost satisfactory results.

The images, 2–3 minutes after intravenous injection of $^{99m}$Tc-pertechnetate, were taken on the polaloid films with simultaneous recording of the data on the magnetic tape, from which the accumulation curve of the prostatic region and uptake ratio between prostate and soft tissue were produced. Previously it was proved that sufficient amount of the $^{99m}$Tc-pertechnetate had not been excreted into the urinary bladder within three minutes following its intravenous injection. Macroautoradiography on rats further proved that there occur a significant accumulation of the scanning agent in the prostatic region.

The subjects consisted of 75 patients with BPH and prostatic carcinoma. The images of the prostatic region, measured with the planimeter and raised to 3/2 power, were significantly correlated with the weights of the prostatic glands resected surgically. Likewise the prostatic images were significantly correlated with ultrasonic tomograms. The images of the prostatic gland, using $^{99m}$Tc-pertechnetate, may be considered to be very useful technique to get the knowledge of the prostatic size and for diagnosis of prostatic diseases.

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