Clinical Significance of Serum and Urine $\beta_2$-Micro-Globulin Determination in Renal Diseases

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Serum and urinary $\beta_2$-microglobulin levels were measured using Phadebas $\beta_2$-micro test (Pharmacia, Sweden) in various renal diseases.

1. The following coefficients of variation were obtained at various concentrations of $\beta_2$-m., intraassays: 10.6±3.0% and interassays: 8.3±4.7%, respectively.

2. The average serum value was $0.94\pm0.37$ (S.D.) (range: 0.48–2.30) mg/L and the average urine concentration was $59.4\pm62.3$, (8–230) $\mu$g/L in 38 control subjects.

3. Serum $\beta_2$-m. levels were well correlated to serum creatinine levels and also linearly related to creatinine clearance ($r= -0.74$ on logarithmic scales.

4. Serum and urinary concentrations of $\beta_2$-m. were also well correlated in slowly progressive glomerulonephritis, but urine levels were unproportionately high in cases with renal tubular acidosis, interstitial nephritis and certain cases with acute myelogenous leukemia. Comparing serum and urine lysozyme levels, $\beta_2$-m. determination appeared to be more sensitive and useful for the detection of renal tubular dysfunction.

Fundamental and Clinical Studies of Radioimmunoassay for $\beta_2$-Microglobulin (Phadebas $\beta_2$-Micro Test)

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Fundamental evaluation of Phadebas $\beta_2$-micro Test was performed, and serum $\beta_2$-microglobulin levels were measured in healthy subjects and in patients with various disorders by using the kit.

Fundamental studies on the kit: The incubation at room temperature for 3 hrs. seemed optimal. Anti-$\beta_2$-microglobulin did not cross react against human serum albumin, $\gamma$-globulin and IgG. The dilution curve of control serum using the buffer of this kit was parallel to the standard curve. The average recovery of added $\beta_2$-microglobulin in the range of 1.5–48 $\mu$g/l was 101.3%. The reproducibility of this kit was tested by measuring three sera of different $\beta_2$-microglobulin concentration ranging from 6 to 90 $\mu$g/l. Variability in the same kit and among the different kits were 4.4–8.3% and 7.1–15%, respectively.

These findings indicated that this kit was...