Diurnal Variation of Serum Alpha-1-Microglobulin in Normal Subjects

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Sir, α_1 -Microglobulin (α_1 -m) is a low-molecular weight glycoprotein which is found in human serum, urine, umbilical cord blood, and cerebrospinal fluids [1–3]. Although its biological function has not been clarified, the level of serum α_1 -m is elevated in patients with decreased glomerular filtration rate, while its urinary level is increased in patients with renal tubular disorders. This is expected to be valuable for the differential diagnosis of renal disorders [1–3]. We have investigated the diurnal variations of serum α_1 -m levels. 10 healthy men aged from 20 to 40 years were chosen and their venous bloods were collected at 9:00 a.m., 11:00 a.m., 2:00 p.m. and 8:00 p.m. No restriction was placed on daily living habits. Serum α_1 -m was measured by single radial immunodiffusion, containing 1 % anti- α_1 -m IgG of goat antiserum in agarose gel [4]. Technical variation ranged between 4 and 6% in triplicate determinations. The results indicated that there were no significant changes among specimens at different times. The serum concentration of α_1 -m was 1.80 ± 0.18 mg/l (mean $\pm$ 1 SD) at 9:00 a.m., 1.77 ± 0.17 mg/l at 11:00 a.m., 1.78 ± 0.16 mg/l at 4:00 p.m. and 1.78 ± 0.16 mg/l at 8:00 p.m.

The level of α_1 -m in urine was also measured using the radio-immunoassay of a solid antibody system [4]. Daily total excretion of this protein ranged between 0.5 and 1.9 mg, and the α_1 -m clearance thus obtained was 0.38–2.02 liters/day (1.20 liter/day on the average).

References

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