AMENDMENT ON THE ESTIMATION OF TOTAL 17-HYDROXYCORTICOIDS IN URINE USING SEMICARBAZIDE HYDROCHLORIDE

To the Editors:

The originality in our previous report (Endocrinol. Japon., 1:81, 1954) on the estimation of total 17-hydroxycorticoids in urine lies in the use of semicarbazide hydrochloride to eliminate the urochromogenic substances instead of the alkaline wash described by Thorn et al.. Recently the butanol extraction and some other points of the Smith’s method for the estimation of the total 17-hydroxycorticoids in urine have been criticized severely by Dr. Nakao et al. But we believe that the combination of the butanol extraction and the phenylhydrazine reaction will keep the great clinical value, if elimination of urochromogenic substances by semicarbazide hydrochloride carries out adequately.

A, Phenylhydrazine reaction products; B, Urine blank (7 mg. of semicarbazide hydrochloride was used); C, Urine blank (15 mg. of semicarbazide hydrochloride was used); Bl. A, Butanol blank A; Bl. B, Butanol blank B.
After our previous article had been written, several facts to be reported have been found in our clinic. The first is that the dosis of semicarbazide hydrochloride must be changed in each sample urine. For example when 7 mg. semicarbazide hydrochloride was added to a urine sample, curve A and curve B shown in the figure were in accord under 350 mµ and over 500 mµ, but when 15 mg. semicarbazide hydrochloride to a same sample, curve A and C did not show the accordance under 350 mµ and over 500 mµ. These facts indicates us that the adequate dosis of semicarbazide hydrochloride must be decided in each sample according to the graphical method to find the crossed point at 500 mµ. Grossly speaking the dosis of semicarbazide hydrochloride to be necessitated is 15 mg.—20 mg, but time to time is over 30 mg. To such latter case which supposed to contain so great amounts of urochromogenic substances, the dilution of urine is necessary. The second was the fact that the long term storage of urine by the addition of sulfuric acid in room temperature makes little decrease in the value of 17-hydroxycorticoids in urine. For example a urine sample was stored for 8 months in room temperature during which the summer was contained, and the estimation of it were carried out before and after 8 months storage. Former was 32 mg. per day and latter was 29 mg., that is to say, only 9% decrease was calculated. This facts indicated that the long term storage under room temperature does not destroy the very 17-hydroxycorticoids in urine, but only have the urochromogenic substances increased. So if the effective elimination for urochromogenic substances is applied, even the long term storage of urine in room temperature is possible. The will give the not less value for clinicians.

TOKUJI ICHIKAWA,  
MASAYOSHI WAKU,  
AND MAKOTO ISHIMOTO,  
Urology Department,  
Medical Faculty,  
University of Tokyo  
and Chemical Laboratory,  
Scientific Faculty,  
University of Tokyo  
(Received March 5, 1955)