

Letter to the Editor

Physiologic roles of 11 β -hydroxysteroid dehydrogenase type 2 in kidney: a comment on the article of Isomura et al

To the Editor:

I read with great interest the article of Isomura et al [1] who investigated the excretion of urinary free cortisone (UFE) and cortisol (UFF) in healthy men. They considered, similar with other recent studies [2-5], the ratio of UFE/UFF as a sensitive index of renal 11 β -hydroxysteroid dehydrogenase type 2 activity reflecting mineralocorticoid action in healthy men. However, a shortcoming of their investigation is that Isomura et al [1] ignored the possible influence of variation in urine volume. It may be remembered that Lloyd [6] already stated more than 50 years ago that “we have also noticed that higher urine volume[s] tend to be associated with higher corticosteroid levels. We have never found a patient with a low corticosteroid level who has a high urine volume” (p 469). If one takes into account that his so-called corticosteroids mainly comprise UFE and UFF, it might be assumed that the excretion of free corticosteroids depends on urine volume [7]. Recent work from our laboratory [8,9] as well earlier studies, both in human [10-14] and laboratory animals [15,16], support this view.

In conclusion, attention to the relationship between urine volume and urinary free corticosteroid excretion is crucial for data interpretation and for reducing the uncertainty associated with measures of urinary free corticosteroids. The UFE/UFF ratio may then be used as a reliable index to monitor functional changes of the 11 β -hydroxysteroid dehydrogenase type 2, which may provide new insights into the mechanisms of renal Na and K handlings.

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