Correlation between Twenty-four-hour Urine Urea Nitrogen and Spot Urine Urea Nitrogen in Patients with Non-hematologic Malignancy

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Background: Malnutrition is a common problem in patients with cancer, especially non-hematologic malignancy. 24-hour urine urea nitrogen (UUN), as an assessment of nitrogen balance, may indicate nutritional status, but the procedure may be inconvenient. Utility of spot urine samples is proposed to estimate 24-hour UUN.

Objective: To study the correlation between 24-hour UUN and UUN values from spot urine samples in patients with non-hematologic malignancy.

Methods: Twenty-nine patients with non-hematologic malignancy who admitted between January 2016 and March 2017 were enrolled in our study. Spot urine samples were taken from the first void in the morning, after lunch, and the last void on the same day of 24-hour urine collection. The correlation between UUN as well as UUN/UCr ratio from spot urine samples and 24-hour UUN was analyzed by regression analysis.

Results: From the total 29 patients, the mean of 24-hour urine urea nitrogen was 4.87 g. The mean of UUN of spot urine samples from the morning, afternoon, and the last void were 394, 342, and 389 mg/dl, respectively. There was a significant correlation between 24-hour UUN and UUN from spot urine samples taken from all time frame (P < 0.001 for the morning sample, P = 0.001 for the afternoon sample, P = 0.01 for the last void sample). Additionally, the correlation between 24-hour UUN and UUN/Cr from morning spot urine was also significant (P = 0.02).

Conclusion: The UUN from spot urine samples are significantly correlated with 24-hour UUN. Therefore, UUN from spot urine, particularly samples taken from the first void, may be used as a nutritional assessment tool, indicating protein metabolism, in patients with non-hematologic malignancy.

Keywords: Urine urea nitrogen, Urine urea to creatinine ratio, Spot urine sample, Cancer, Malnutrition