S-B23

Low Plasma Level of Cathelicidin is associated with Decreased eGFR

Ha Yeon Kim, Eun Hui Bae, Seong Kwon Ma, Soo wan Kim

Department of Internal Medicine, Chonnam National University Medical School, Gwangju, Korea

Background: Infectious complications are a frequent cause of hospitalization in patients with chronic kidney disease, and the second leading cause of mortality after cardiovascular disease. Infectious mortality rates increased with lower kidney function. This study assessed plasma cathelicidin, 25-OH vitamin D, and natural killer (NK) cell which play an important role in innate immunity.

Methods: The study cohort included 175 patients who have a variety of estimated glomerular filtration rate (eGFR) at the Chonnam National University Hospital. Age, sex, white blood cell, lymphocyte, hemoglobin, platelet, blood urea nitrogen, creatinine, electrolytes, albumin, vitamin D, C-reactive protein, and calculated the body mass index were checked. Plasma catehlicidin level was measured by ELISA and absolute count of NK cell was determined by flow cytometry. NK cell was identified phenotypically as CD3-CD56+.

Results: The study population was divided into 3 groups according to the eGFR: Group I, eGFR ≥60 mL/min/1.73m^2, n=33 (18.9%); group II, 15≤eGFR<60 mL/min/1.73m^2, n=47 (26.8%); group III, eGFR <15 mL/min/1.73m^2, n=95 (54.3%), respectively. Plasma cathelicidin level was decreased with lower eGFR (189.3±18.21 ng/mL in group I, 182.6± 17.69 ng/mL in group II, and 179.7±17.76 ng/mL in group III, p=0.032, respectively). On the other hand, percentages and absolute numbers of NK cells were significantly higher in the peripheral blood of patients wtih lower eGFR (1897.7±1584.05 in group I, 2110.8±2168.37 in group II, and 2833.8±2149.65 in group III, p=0.034, respectively). A 25-OH Vitamin D was not distinguish in these groups, but after an exclusion of pateints with hemodialysis, 25-OH vitamin D level showed decreasing tendency with lower eGFR (16.4±6.22 ng/mL in group I, 12.4±4.74 ng/mL in group II, and 11.2±4.96 ng/mL in group III, p=0.166, respectively).

Conclusions: The plasma cathelicidin level was significantly decreased with lower eGFR while an absolute count of NK cell was increased with lower eGFR, which might be associated with dysfunction of NK cell. After an exclusion of patients with hemodialysis, 25-OH vitamin D concentiration showed decreasing tendency with lower eGFR. Further research is needed to determined NK cytotoxicity and understand the mechanisms of decreased innate immunity affecting infectious mortality in chronic kidney disease.

Key Words: Catheliciodin, NK cell, CKD