



Upregulation of Urinary L-FABP in Chronic Kidney Disease Progression with Proton Pump Inhibitors : A Case-control Study

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Background: Proton pump inhibitors (PPIs) increases risk of progression of chronic kidney disease (CKD) possibly due to tubulointerstitial nephritis. However, sparse data are demonstrated the evidence of tubulointerstitial damage. A novel biomarker of structural changes in tubular cells such as liver-type fatty acid binding protein (L-FABP), is used as a predictor of CKD progression by some researchers. We hypothesized that changing of urinary L-FABP due to interstitial fibrosis can predict the progression of CKD in patients with prolong used of PPIs.

Objective: To compare the mean changes of urinary L-FABP level in stage 3 to 4 CKD patients receiving or not receiving PPIs.

Methods: We performed a 6-month prospective case-control study among CKD patients with estimated glomerular filtration rate between 15-59 ml/min per 1.73 m². Eligible participants were assigned into case (study group) who received PPIs more than 6-month (N=56) and control group who did not receive PPIs (N=61) at the same time of the study. Demographic and physiological data were collected at the time of enrollment. Blood was tested for creatinine and magnesium. Glomerular filtration rate (GFR) was estimated by using CKD-EPI formula, Urinary L-FABP was analyzed using commercially ELISA kit (CMIC Holdings, Tokyo, Japan). Categorical variables were expressed as proportions and compared using the Pearson χ^2 . The biomarker measurement was determined using AUC-ROC curves providing sensitivity and specificity at different cutoff values to detect CKD progression.

Results: A total of 117 patients with CKD stage 3-4 were enrolled in the study. Sixty-one patient was in the control group. The mean (SD) age was 74.89 + 8.7 years in the control group and 77 + 8.19 years in the study group (p=0.18). The mean change of urinary L-FABP in the control group was 599.61 + 54.1 pg/ml (p = 0.24) and the study group was 2,970.24 + 1017.6 pg/ml (p=0.009), with significant difference between the two groups (p=0.031). The mean change of estimate GFR did not statistically difference between these two groups (P=0.45). The study also demonstrated the significant difference of serum magnesium between the two groups at the beginning of the study (p=0.02) and at the end of the study (p=0.01). Lower serum magnesium was identified in the case group.

Conclusion: Urinary L-FABP is higher along with time in CKD stage 3-4 patients receiving proton pump inhibitors.

Keywords: L-FABP, PPIs, CKD progression