KSN 2016 Abstract Submission

CKD & associated complications

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Clinicopathological characteristics and related biomarkers of diabetic nephropathy

Takashi Wada*

What is your preferred presentation type?: Oral Presentation

Do you want to apply for travel grants?: No

Background: Diabetic nephropathy is a leading cause of chronic kidney disease, resulting in end-stage kidney disease all over the world including Asian countries. For prevention and better prognosis, deep insights into risk factors and clinicopathological features associated with the progression of diabetic nephropathy will be required. Further, clinically relevant biomarkers for early and specific diagnosis and/or predicting prognosis in patients with diabetic nephropathy are required in clinical settings.

Methods: To address these, we have been conducting two distinct nation-wide registries. First, we have established clinicopathological registry consisting of biopsy-proven type 2 diabetic patients to examine structural-functional relationships and the prognostic factors for kidney, cardiovascular events, and all-cause mortality. Next, we have been conducting a prospective registry, the Japan Diabetic Nephropathy Cohort Study (JDNCS), which collects physical and laboratory data from type 2 diabetic patients since 2009. Especially, urine samples have been collected in this registry. Insights into the close relation of pathological features with levels of biomarkers reflected by clinical phenotypes are also of importance in particular. Accordingly, we have been exploring and validating candidates for possible biomarkers of diabetic nephropathy especially using human samples obtained from JDNCS and our biopsy-proven diabetic nephropathy cohort.

Results: Based on the biopsy-proven diabetic nephropathy registry, the characteristic pathological lesions, such as the presence of subendothelial space widening, advanced interstitial cell infiltration, as well as albuminuria were closely related to these long-term outcomes in 600 type 2 diabetic patients with biopsy-proven diabetic nephropathy. We have also analyzed the data of 619 participants in the JDNCS. JDNCS was characterized by diabetic patients presenting with/without proteinuria and moderately preserved kidney function. Future analysis of registry based on biopsy-proven nephropathy patients as well as JDNCS will provide clinical insights into the epidemiology and kidney, cardiovascular outcomes of type 2 diabetic patients.

We previously reported that increased urinary levels albumin were closely related to the increase in risks for kidney, cardiovascular events and all-cause mortality, whereas the association of high levels of urinary albumin excretion with reduced kidney function was a strong predictor for kidney events, resulting in kidney failure. Thus far, urinary L-FABP, for examples, may be a useful prognostic marker of progression to end-stage kidney disease and the onset of cardiovascular diseases in type 2 diabetic patients as well as in patients with chronic kidney disease.

Conclusion: In this symposium, clinicopathological characteristics and related possible biomarkers of diabetic nephropathy based on these aspects will be discussed.

Disclosure of Interest: None Declared

Keywords: biomarker, cardiovascular disease , diabetic nephropathy, kidney biopsy, kidney failure, mortality, registry