Predicting the Progression of Chronic Kidney Disease?

Mai-Szu Wu1,2 and Chiao-Ying Hsu1

1Division of Nephrology, Department of Internal Medicine, Taipei Medical University Hospital
2Department of Internal Medicine, School of Medicine, Taipei Medical University
Taipei, Taiwan, Republic of China

The increase of dialysis population is a global phenomenon. Taiwan is a country with the highest prevalence of dialysis in the world in 2010 (1, 2). The phenomenon may persist for years, as the prevalence of chronic kidney disease (CKD) is also as high as 11.9% (3). Slowing down the progression of CKD is a major task to reduce the burden with this large CKD population. The progression of CKD is heterogeneous, showing various rates of progression. It is essential to identify the rapid progressors and treat them timely before they advance to end-stage renal disease. The study published in this issue of Acta Nephrologica addressed the question of predicting the progression of CKD under current Multidisciplinary Care Program (MDCP) in Taiwan. It is a retrospective observational study and aims to identify the clinical characteristics of rapid CKD progressors under MDCP. Higher systolic blood pressure and lower serum albumin level are found to be correlated with rapid progression of late-stage CKD under MDCP.

The introduction of MDCP in Taiwan can be traced back to 2003. Six key hospitals initiated experimentally the program under the design and surveillance of the Taiwan Society of Nephrology (TSN) (4). The National Health Bureau of Taiwan also supported the program. The MDCP proposed a standard care protocol and annual reporting system. The program extended gradually around the country with 19 participating hospitals in 2005, 44 in 2006, 89 in 2009, and up to 126 hospitals in 2011. A multicenter controlled study had found that the MDCP program reduced incident dialysis patients and all-cause mortality in late-stage CKD patients in Taiwan (5). With this supporting evidence, the National Health Insurance Bureau decided to reimburse for the standardized pre-dialysis care beginning from 2011.

The joint effort between hospitals and the government to battle against CKD progression is thought to be among the pioneers around the world. The propagation of the MDCP might partially explain the stabilization of increase in incident ESRD patients in Taiwan (1, 2, 6).

However, still many patients progress to ESRD even under this standard therapy. The question arose who will progress with this standard therapy. The article indicated that higher systolic blood pressure and lower serum albumin level are correlated with rapid progression of late-stage CKD under the MDCP. Such findings are not beyond our understanding of progression in CKD (7, 8). Hypertension and serum albumin were found to be associated with progression of renal disease in many epidemiological studies (9). The study again suggested that these two factors were still associated with progression of CKD even under the MDCP. The results proposed two possible causes. The first one is that the current MDCP therapy is not good enough to slow down the progression in this set of CKD patients. The second possibility is that the current targets of hypertension and albumin management were inappropriate and should be reset to slow down CKD progression. Hence, there arose the question of whether further improvement of hypertension control and albumin management would slow down CKD progression under the MDCP.

To answer the question, interventional studies should be designed for blood pressure control and albumin management in this specific population. However, the clinical heterogeneity in the CKD population makes designing and performing prospective randomized control trial to get solid evidence on beneficial effect of hypertension and albumin...
management a big challenge. 

Furthermore, it is interesting to speculate that this specific group of patients will not benefit from the present management for CKD in Taiwan. It is likely that the traditional renin-angiotensin system blockade approach might not be appropriate in this set of CKD patients. On the other hand, the compliance of these patients should be re-evaluated by a prospective randomized control trial. A novel therapeutic plan is indicated for CKD patients with high systolic blood pressure and low serum albumin level, if the compliance is good.

However, the present management of CKD patients did not alter with this information provided by the study. We should control the traditional risk factors for CKD progression, such as hypertension, hyperglycemia, dyslipidemia, and life style. In addition, we also have to monitor closely anemia, calcium/phosphate balance, oxidative stress, inflammation, uremic toxins accumulation, and renin-angiotensin activation (10). All these measurements, including blood pressure control and albumin management, were included in the standard MDCP in Taiwan (5). We should adhere to the current principles of CKD treatment, which were summarized in the existing MDCP, until further clinical evidences emerge.

The article in this issue of Acta Nephrologica prompts reconsideration of our present MDCP. The program is far from perfect with some percentage of CKD patients progressing to end-stage renal disease. Further research and measurement are necessary to battle the increasing burden of CKD in Taiwan and all over the world.

References