be inconvenience. Thus, many alternatives such as urinalysis strips are proposed. However, the standard practical guidelines mention that the measurement of urine protein for early diagnosis of renal impairment must be the determination of albumin level comparing with creatinine level in urine, which is called *albumin-creatinine ratio*.[3] The early reversible renal disorder can present low excreted urine albumin level that is called *microalbuminuria*. Many reports confirm the clinical relationship between this urine biomarker and prevention of kidney disease. However, the problem of the "quality" of the determination of microalbuminuria must be addressed. Here, the author retrospectively appraised on the published papers on microalbuminuria determination in Thailand. The author performed a literature review to identify published papers in well-known medical reference databases (PubMed and Scopus).

The search term was *microalbuminuria* and the specific setting was Thailand. The papers which reported the microalbuminuria determinations were further included into this study. The exclusion was made in cases of nonclinical studies. All papers were carefully read and the specific technique for microalbuminuria determination was extracted for further assessment. The judging on the standardization of the techniques was based on the reference reports on the recommendation of microalbuminuria determination.[3]

According to the literature searching, there were 19 published papers for assessments. Of the overall 19 reports, only 17 used standard microalbuminuria determination, the urine albumin-creatinine ratio quantitative measurement by automated clinical chemistry analyzer (89.5%). It can be seen that not all reports used standard tools, which means the doubtfulness of results and conclusions on many published papers. Interestingly, the two problematic papers (10.5 %) used a semiquantitative single urine strip test (immunoassay urine strip) to determine urine albumin level without any comparison to urine creatinine level. Using the single urine strip test is considered nonstandard practice, since it cannot provide the result that can be used for interpretation of microalbuminuria, although it can provide a very fast result.[3] General readers and practitioners should be concerned about the correct principle of microalbuminuria determination and correctly use it in their routine clinical practices. In addition, this work can also reflect the importance of the standardization of urine screening test for kidney disease in Thailand. This has never been systematically evaluated although there are some previous concerns on other tests for other diseases such as diabetes mellitus.[4] The concern on standardization of laboratory testing should be focused in pre-analytical quality management.[5]

Viroj Wiwanitkit

Wiwanitkit House, Bangkhae, Bangkok, Thailand
E-mail: wviroj@yahoo.com

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Cyclosporine Trough Level Monitoring

Editor,

In an interesting paper, Hami and colleagues[1] mentioned cyclosporine trough level (C0) has no direct relation with drug side effects and it is not a suitable measure for assessment of drug side effects. In addition, they concluded C0 is not a reliable tool for dose adjustment of drug after kidney transplantation. We would like to draw the attention of the readers to studies that might be relevant to discuss in this context.

We agree with Hami and colleague[1] that we need a reliable way to monitor cyclosporine therapy because adequate blood level of cyclosporine is required for prevention of the allograft rejection. Moreover, 2-hour postdose level of cyclosporine (C2) is also not a good predictive value for kidney allograft side effect. We recommend that other tools are required to approach to therapeutic drug monitoring in order to prevent kidney allograft rejection and cyclosporine nephrotoxicity. Several studies have been previously described the nonsignificant statistical link between C0 and C2 with kidney allograft function.[2-4] However, some data suggest that C2 levels are correlated better with dose and serum creatinine concentration.[5] Although a previous international consensus statement on C2 monitoring strategies suggests importance of C2 blood level,[6] direct evidence for an advantage of C2 monitoring over C0 blood levels is limited.[7] Furthermore, a pilot study shows no advantages of C2 monitoring.[2] We also previously showed a relatively good outcome in kidney transplants despite obvious lower levels of C2 compared with international consensus recommendations.[8] Pourfarziani and associates demonstrated that although most of the patients had C2 levels lower than the suggested ranges, they observed acceptable patient and graft survival rates. They suggested that different ethnic populations might need different target levels definition.[9] Furthermore, approaching specific C2 levels for kidney transplant patients with different immunosuppressant regimen or genetic polymorphisms seem necessary.

On the other hand, cyclosporine blood level may lead to some clinical problems; for example, blood samples for C2 levels are taken during a more dynamic phase of cyclosporine absorption than those for trough levels, accurate timing of samples is a point of question.[10] Controversial questions of C0 and C2 levels induced immunosuppressive action based upon close observation of most recent pharmacodynamic approaches are still interesting. Instead of a priori not beneficial cyclosporine monitoring tools, it seemed to be logical that we should re-inspect the possible of using them as a supplementary tool towards better therapeutic drug monitoring of cyclosporine or it needs to reevaluate and find new target for therapeutic plan in kidney transplant patients.

Behzad Einollahi, Mojtaba Teimoori

Nephrology and Urology Research Center, Baqiyatallah University of Medical Sciences, Tehran, Iran
E-mail: einollahi@inju.ir

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