

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

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