The efficacy and safety of Abelmoschus manihot (a traditional Chinese medicine) for chronic kidney disease: a systematic review and meta-analysis of observational studies

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Objectives: Abelmoschus manihot (Linn.) Medicus (family Malvaceae) has been widely prescribed in China to patients with chronic kidney disease (CKD), irrespective of causes and clinical stages, for more than 10 years. However, this drug was not world-wide used due to incompleteness of its properties and concerns about possible side effects. Although the majority of clinical trials were observational and had low study quality, the apparent clinical impact and promising experimental results provided the rationale for this meta-analysis, which aimed to systematically investigate the benefits and harms of A. manihot in the treatment of CKD.

Methods: The protocol of meta-analysis was previously registered in the PROSPERO database with registration number of CRD42011001544. We searched Cochrane Central Register of Controlled Trials, EMBASE, PubMed, Allied and Complementary Medicine Database, Traditional Chinese Medical Literature Analysis and Retrieval System, Cumulative Index to Nursing and Allied Health Literature, Chinese Biological Medicine Database, Chinese National Knowledge Infrastructure, Wei Pu information, and Wan Fang Data in July 2011. The MeSH terms were "Abelmoschus", "Renal Insufficiency", "Diabetic Nephropathies", "Nephritis", and "Nephrosis". The free words were accordingly searched in each database. Hand searches of relevant trials and reviews were also conducted. Data collection, meta-analysis and assessment of risks of bias were independently preformed by two reviewers.

Results: Fifty-seven observational studies involving 3946 patients were included: 23 trials involved 1844 patients with diabetic nephropathy, 22 involved 1369 patients with non-diabetic nephritic syndrome, and 12 involved 733 patients with non-diabetic nephrotic syndrome (Figure 1). According to Grading of Recommendations Assessment, Development and Evaluation (GRADE), our results were considered as data of "low quality level". Urinary proteinuria excretion rate (UPER) at the end of treatment was significantly lower for patients receiving A. manihot when compared to patients receiving non-A. manihot treatment: MD -0.20 g/24h [-0.25, -0.15] for diabetic nephropathy (Figure 2); MD -0.44 g/24h [-0.57, -0.31] for non-diabetic nephritic syndrome (Figure 3); MD -0.82 g/24h [-1.12, -0.51] for non-diabetic nephrotic syndrome (Figure 4). Serum creatinine was better preserved with A. manihot as compared to non-A. manihot treatment: MD -7.73 μmol/L [-14.16, -1.29] for diabetic nephropathy (Figure 5); MD -11.93 μmol/L [-17.65, -6.21] for nephritic syndrome (Figure 6). Serum albumin was also significantly increased with A. manihot as compared to non-A. manihot treatment (MD 4.32 g/L [2.94, 5.70]) for nephrotic syndrome (Figure 7). No serious side effects were observed and the most common was well-tolerated gastrointestinal discomfort. Other side effects such as mild to moderate dizziness and dry mouth were not frequently reported.

Conclusions: A. manihot could significantly reduce proteinuria and better preserve serum creatinine/albumin, with well-tolerated side effects. There is still an urgent need for high-quality randomized controlled trials with appropriate random sequence generation, allocation concealment, and blinding to ascertain the efficacy and safety of A. manihot for CKD in the long run.