Symptom Patterns in ESRD

By Chia-Ter Chao and Hung-Bin Tsai

Patient-reported outcomes in patients with chronic kidney disease (CKD)/ESRD have assumed increasing importance during recent years, because these factors also play a vital role in affecting outcomes, as do traditional survival determinants. A comprehensive understanding of measurements coming directly from patients is expected to assist physicians in improving patient care and facilitate patients in optimizing their decision-making processes. Incorporating patients' viewpoints and ameliorating their discomfort throughout the course of CKD and even the dialysis career constitute an important aim for optimal supportive care for renal patients. Furthermore, when CKD patients are required to choose between the option of dialysis or no dialysis when they face peaking creatinine levels, the totality of symptom burden frequently stands out as an important factor driving their thought process.

Patients with progressive renal dysfunction often have multiple comorbidities, leading to a plethora of symptoms. A systematic review disclosed that CKD/ESRD patients experience a disproportionately high prevalence of different physical symptoms, the most common of which include fatigue (49% to 100%), drowsiness (49% to 82%), pain (38% to 90%), pruritus (33% to 84%), dry skin (42% to 72%), and muscle cramps (26% to 74%) (1). In addition to physical symptoms, depression can be the most common psychological symptom among CKD/ESRD patients. Studies indicate that more than 20% of incident dialysis patients have increasing severity of depression within the first year of dialysis; this phenomenon was modified by their disease perception and understanding (2).

Patients with CKD/ESRD have, on average, 6 to 20 symptoms as shown by different assessment instruments (1). It is interesting to note that patients with stage 5 CKD reportedly might have a similar number of symptoms and impairment in quality of life compared with those with advanced cancer, although the pattern can be distinct in both groups of patients (3). In addition, the patterns of symptoms seem to differ depending on several clinical features. Those who are women, younger, or have longer dialysis duration tend to bear greater symptom burden (higher severity, frequency, and distress) than others (4, 5), but minimal evidence exists regarding the influence of CKD stages on symptom burden. Anecdotal reports suggest that cultural background might affect symptom severity. Finally, the prevalence of symptoms may be higher among advanced CKD patients before they receive dialysis than after dialysis commencement (6).

Symptom clustering is another important signature in patients with CKD/ESRD, because their symptoms frequently exhibit high correlation with each other and come in combination. Studies on hemodialysis patients in the United States revealed that four types of symptom clusters could be discerned, including energy/vitality-related symptoms, cardiac-related problems, pain/discomfort, and gastrointestinal system–related symptoms (7). Another larger study in The Netherlands disclosed that general symptoms of the uremia syndrome (dyspnea, faintness/dizziness, nausea, and appetite loss), neuromuscular problems (muscular ache and extremity numbness), and skin problems (dry, itchy skin) are the three most common symptom clusters identifiable in ESRD patients (8). Symptom clusters are more likely to emerge in those with less urine output, more severe depression, and lower hemoglobin levels (5). Uremic symptom clusters have been shown to independently predict all-cause mortality in a prospective cohort study among ESRD patients (9).

Fatigue or a sense of weakness is the most common symptom reported by CKD/ESRD patients. The presence of fatigue has been found to correlate with malnutrition, anemia, divalent ion imbalances, and chronic inflammatory status in these patients, and we recently discovered that ESRD patients reporting fatigue were at higher risk of low bone mass (10). More important, fatigue is an important component of and contributor to frailty, a degenerative phenotype resulting from the accumulation of multidimensional health deficits and an emerging risk factor for adverse outcomes in patients with renal failure (11).

Other components within the spectrum of symptom burden, such as dry skin, pain, and pruritus, worsen patients' quality of life and indirectly potentiate the development of frailty. ESRD patients with frailty are prone to have hypoalbuminemia, more complicated comorbidities, lower bone mass, and higher risk of vertebral compression fractures than those without frailty (12). Through a connection between symptomatology and frailty, these patient-rated complaints might serve as an intermediate, playing an under-recognized role in outcome determination. In this sense, assisting CKD/ESRD patients by helping them to understand the nature and causes of their symptoms, periodically assessing the severity, and providing optimal symptom management may not only improve their quality of life and enhance physician-patient communication and rapport but also lower the risk of adverse outcomes, including premature mortality, functional impairment, and frailty, indirectly leading to a potential reduction of health care spending.

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