The Interdisciplinary Team: The Whole Is Larger Than the Parts

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Chronic kidney disease (CKD) is an emerging global health problem. Caring for CKD patients is a medical and financial challenge currently placing a significant burden on our health-care system. This creates an impetus to explore nontraditional models of care. In this article, we explore the role of interdisciplinary care clinics in managing the complex and multifaceted aspects of CKD. By having different providers work seamlessly in a synergistic and collaborative environment, there is less risk of fragmentation of care. In this patient-centered model of care, patients are empowered and engaged to achieve therapeutic targets, make lifestyle changes, and participate in decision-making. Timely referral and education delivered by advanced practitioners are 2 of the crucial elements central to the success of the interdisciplinary model. Further studies are needed to identify other key elements that would enhance the interdisciplinary approach to ensure that guideline-based therapeutic targets are reached and to define the subset of patients that would benefit the most. Innovative information technology solutions that could enhance the implementation of interdisciplinary clinics and expand their reach should be exploited. Lastly, for the paradigm shift to occur, the integrative approach should prove to be cost-effective.

Key Words: Interdisciplinary care, CKD, Chronic care model, Integrative care

Chronic kidney disease (CKD) is being described as a global health epidemic placing a major burden on the health-care system of many countries, including the United States. Approximately 13% of noninstitutionalized adults in the United States have CKD, and there is a growing population of patients being treated with renal replacement therapy (be it dialysis or transplantation).[1] As of 2011, the costs for ESRD care already accounted for 6.3% of total Medicare spending.[2]

The traditional model of care for a CKD patient consists of shared responsibility between a primary care provider and a consulting nephrologist (Fig 1). Caring for these complex patients can be challenging because they often have multiple health problems and are on multiple medications. The National Kidney Foundation recommends referral to a nephrologist when the patient's estimated glomerular filtration rate (eGFR) is less than 30 mL/minute per 1.73 m^2. The more recent Kidney Disease Improving Global Outcomes guidelines extended this recommendation to patients with urinary albumin-to-creatinine ratios of more than 300 mg/g.[3-5] Despite these guidelines, consultation with a nephrologist is frequently delayed, and even when a nephrologist is consulted, there may be limited communication between providers, resulting in fragmented care. The 2013 United States Renal Data Service report indicates that 42% of patients starting dialysis had not seen a nephrologist before treatment initiation and 31.6% had seen a nephrologist for less than 1 year.[2] Delayed nephrology care has been associated with reduced access to kidney transplant options, starting hemodialysis with a temporary catheter, and a high mortality rate after dialysis initiation.[6,7] Transplantation may be a more physiologic and cost-effective treatment option than dialysis for patients with advanced CKD. However, even transplant recipients require extensive nephrology care. In 2005, the Kidney Disease Improving Global Outcomes guidelines included all kidney transplant patients under the definition of CKD regardless of their eGFR,[3] emphasizing their need for extensive CKD care, including preparation to reintegrate into dialysis programs when their allograft fails. The current literature suggests that transplant recipients with failing kidney allograft function are less likely to have optimal management of hypertension, anemia, and dyslipidemia as well as to undergo vascular access surgery when compared with their counterparts with failing native kidneys.[8,9]

In addition to its failure at achieving optimal outcomes, our current model of care has not been successful in addressing the psychosocial distress of patients and families dealing with a chronic illness such as CKD, and it has traditionally not addressed end-of-life care issues in a proactive matter.[10] Physicians may not have the tools or expertise to address some of the psychosocial needs of these patients.

Given the above mentioned facts and the rising cost of care, it behooves us to inspect the shortcomings of our current health-care model and to explore other avenues of care delivery. Although the best care model remains to be determined, it may lie in an interdisciplinary care clinic (Fig 2). Under this model, the heavy burden of CKD care is distributed amongst various specialists with expertise in different aspects of kidney disease care as compared with the standard model of care, in which the emphasis is on the primary care physician and the nephrologist. In the interdisciplinary model, the boundaries between the different team members become blurred, and there is increased engagement within the team but also on behalf of the patient. There is growing interest amongst nephrologists that these clinics be the standard for treating CKD.[11]

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In fact, as early as 1994, a consensus panel by the National Institutes of Health[12,13] advocated that predialysis care of the CKD patient should be handled by a team consisting of a nephrologist, dietician, nurse, social worker, and mental health professional. To this date, the personnel involved in setting up a CKD clinic vary across and within countries.

The positive effect of the interdisciplinary team approach to other chronic illnesses has long been recognized. For example, interdisciplinary breast cancer clinics have improved patient satisfaction and have been shown to decrease the time between diagnosis and treatment initiation.[14] In-patient interdisciplinary care treatment for patients with active rheumatoid arthritis had a beneficial effect on patients' emotional status and disease activity.[15] The effect of such an interdisciplinary approach to the care of CKD patients is less well established, but the current literature seems to favor such an approach over traditional models of care. In a case control study across 2 countries and 2 continents (Canada, North America; and Italy, Europe), Curtis and colleagues showed that when compared with traditional nephrology care, exposure to a formal interdisciplinary CKD clinic was associated with better laboratory parameters upon initiation of dialysis but also, and more importantly, with a significant survival advantage after the initiation of dialysis. In this study, the interdisciplinary clinic team included a nurse, physician, social worker, nutritionist, and pharmacist. Of note, the average exposure to the interdisciplinary clinic was 8 hours per patient-year as opposed to 4 hours of nephrology care in the traditional model.[16]

CLINICAL SUMMARY

- The number of patients with CKD is increasing and an interdisciplinary model could be an effective option to deal with the complexity of their care.
- Timely referral and psychosocial education, especially when provided by advanced practitioners, seem to be key factors in the success of the interdisciplinary approach.
- Although the literature suggests that the interdisciplinary team is better than the traditional model of care, optimal therapeutic targets are still not being met, and there is room for improvement.
- Further research should be geared toward refining the interdisciplinary care model and to explore the role of information technology in its implementation and its cost-effectiveness.

Beyond the effects of an interdisciplinary clinic on dialysis outcomes, the literature suggests that such a model of care offers advantages to patients during the CKD phase of their illness. Hemmelgarn and colleagues identified a cohort of CKD patients (≥66 years of age) from Calgary, Alberta, Canada. Of the 6978 patients identified, 2.7% ($n = 187$) received their care in interdisciplinary clinics and tended to be older, have more comorbidities, and lower eGFR than those receiving traditional care. Using propensity scoring, these 187 patients were matched 1:1 to patients receiving usual care. In this particular study, patients referred to the interdisciplinary clinic underwent an education session at their first visit and met with a specialized clinic nurse, registered dietician, and social worker. From there on, they had visits and laboratory work every 1 to 3 months. When compared with traditional care, an interdisciplinary approach to the care of CKD patients was associated with improved survival. On the other hand, no difference in the rate of hospitalizations was detected.[17]

In another study, Bayliss and colleagues identified 2002 CKD patients; of those identified, 233 received care from an interdisciplinary team consisting of a nephrologist, renal clinic pharmacy specialist, diabetes nurse educator, kidney dietician, social worker, and nephrology nurse over a mean observation period of 2 years. Compared with patients who received usual care, those who benefited from a team-based interdisciplinary approach had a slower decline in eGFR (−1.2 vs −2.5 mL/minute per 1.73 m^2) and were less likely to initiate dialysis.[18]

More recently, Chen and colleagues conducted a 3-year prospective cohort study in Taiwan in which they included 528 matched pairs of CKD patients assigned to usual primary care (with nephrology consultation) vs interdisciplinary nephrology care consisting of a nephrologist, nephrology nurse educator, kidney dietician, social worker, pharmacy specialist, and surgeon for dialysis access placement and transplantation. In that study, the interdisciplinary group compared with the traditional care group had a lower rate of eGFR decline (−5.1 vs −7.3 mL/minute per 1.73 m^2) and a 51% reduction in mortality. Patients in the interdisciplinary group were also more likely to elect peritoneal dialysis and to have a vascular access rather than a catheter at the time of dialysis initiation. On the other hand, the frequency and length of hospitalization were no different among the 2 groups.[19]

Therefore, the balance of evidence is in favor of an interdisciplinary approach to the care of CKD patients showing benefits after dialysis initiation as well as before dialysis, delaying the progression of CKD and improving mortality. When interdisciplinary clinics are available, as they are in parts of Canada, 91% of nephrologists report using them for patient care.[20] But what sets apart the interdisciplinary care from the traditional care?

In the studies showing significant delay in renal replacement therapy, education and frequent contact with the patients were essential.[18,21] Devins and colleagues performed a randomized controlled study involving participants with CKD Stages 4 to 5 recruited from 15 hospitals in Canada. The intervention group received psychoeducational material in the form of a slide lecture and a booklet including information about nutrition, lifestyle choices, dialysis modalities, etc. Patients in this arm also received supportive follow-up phone calls every third week. Patients in the control group received no structured educational intervention. Time to dialysis was significantly improved in the intervention group.[7] A 20-year follow-up of the same cohort of patients showed that psychoeducational intervention also significantly improved survival.[22]