

Preparation of the Dialysis Access in Stages 4 and 5 CKD



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Patients with Stages 4 and 5 CKD are optimally managed within a multidisciplinary care setting. This provides an opportunity to create a “patient centered” approach to renal replacement modality options and conservative care. The care team engages with the patient and caregivers to assist with the understanding of their health status, modality and vascular access selection, and overall living with the comorbidity of chronic illness. A systematic approach to provision of education, modality, and access selection, are in part, driven by the patient’s expected survival and need for dialysis, the risks and benefits with different modalities, and access and adaptation to their preferences and home situations. Dialysis access education should be included in all education programs so that patients can consider risks and benefits of all modalities. Decision support interventions have been effective in reducing decisional conflict and informed values-based decision-making. For both hemodialysis and peritoneal dialysis, timing of the surgical referral and access creation should be individualized based on the rate of CKD progression, risk of complications, and ease of access to surgical services. The health care team should support the patients’ decision balancing risks and benefits, as well as their lifestyle, values, beliefs, and preferences.

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INTRODUCTION

The time before end-stage kidney disease (ESKD) is challenging for the patient with CKD, marked by uncertainty of their health status, modality and dialysis access selection, and overall living with the comorbidity of chronic illness. Patients require an educational opportunity and environment, which encompasses all the facets of living with CKD. A patient-centered approach includes education about information on slowing the progression of CKD, followed by options for renal replacement therapy (RRT). This includes hemodialysis (incenter hemodialysis (ICHHD) and home hemodialysis), peritoneal dialysis (PD), kidney transplantation, and conservative care. Patients have many fears about their future health state and the need for RRT and we, as health professionals, are charged with alleviating these fears and empowering them to manage their disease.

Importantly, patients and their families will need an understanding that there is not just 1 decision about dialysis modality and access, rather, they will likely be exposed to different modalities and dialysis accesses throughout their journey with kidney disease. As CKD clinicians and educators, we are tasked with providing this broad overview and assisting our patients with making specific decisions, while considering their individual preferences, values, and beliefs.

MODALITY DECISIONS

Decisions involving modality and dialysis access choice are complex and require unique knowledge of the patient’s specific risks and benefits and just as important, their values and preferences. It has been well documented that patients are reluctant to make decisions around dialysis planning and initiations.¹ Recently, patients’ behavioral state of change, that is, their readiness to make decisions about dialysis was documented.² Patients that understand their modality options and have higher dialysis knowledge scores more likely to take a leading role in the decisions making process regarding their treatment and care. The importance of education and knowledge transfer is consistent with results from the Treatment Options Program study, where patients received a standardized approach to modality and access options and had greater use of home therapies, and more patients were also using an arteriovenous (AV) access.³

Many jurisdictions have now established CKD or “predialysis” clinics, which use a systematic approach to education on RRT modality selection and dialysis access based on patient preference and risk assessment. However, even in those programs, almost 50% of patients start dialysis without documentation of a preferred modality choice, despite more than an average 26 months of nephrology follow-up.⁴ Patients without a preferred modality generally started their first RRT on ICHD (68%) and were also less likely to have an AV access creation (50%) than those who had a documented preferred modality and started ICHD (71%). In Canada, access to a predialysis clinic is not perceived as a barrier for care of CKD patients, yet failure to make decisions about dialysis modality and access remains a significant barrier for patients.¹

Recent data highlight the importance of patient decision aids in providing support for patient modality choice.⁵ Progressive implementation of an education process

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with decision aids has resulted in 50% of patients starting with PD, mirroring the patient's intended access choice. In addition, a recent meta-analysis highlights that modality decisions are highly personal and strongly influenced by patient and family values, the context of their life, and a desire for minimal lifestyle intrusiveness.⁶ The focus now needs to be on patient and family preparation, knowledge of different modalities, and the lifestyle implications of those choices.

Dialysis Access Education

Without the proper education, patients are unable to make an informed decision regarding dialysis access choice that suits their health needs and lifestyle. Beyond the patient consent process, vascular access education is also associated with increased fistula use at dialysis initiation—likely due to lower rates of refusal to cannulate a mature access.⁷⁻¹¹ Predialysis educational programs are also associated with decreased mortality and a longer time interval until dialysis initiation, which would give more time for fistula creation and maturation.^{9,11,12}

There is evidence suggesting that there are problems in providing CKD patients with adequate dialysis access education and information.¹³

Patient knowledge and educational support can predict modality and vascular access choice. Therefore, low initial rates of AV access use in Canada and the United States may be partly attributed to poor knowledge of vascular access choices and the lack of adequate education in the CKD clinic. This may also apply to the low use of PD, particularly in the United States. This may be in part due to the patient's reluctance to receive and synthesize any information about the need for future dialysis. Patients who do not understand the advantages and disadvantages of the different vascular access options will not be able to make an informed decision and may default to or elect to choose the easiest option: a catheter. Only when the patient fully understands their vascular access choices, can they be equipped and empowered to effectively participate in decision-making regarding their care.

Beyond the educational material, the timing and delivery method for dialysis access education remains an ongoing challenge for both patients and health care teams. There is evidence to support use of a defined care pathway, identifying the eGFR levels for patient education, referral to surgeons and access creation. Provision of vascular access education at higher eGFR and earlier creation can lead to timely vascular access placement and improves patient outcomes.¹⁴ Information about the importance of vein preservation, to avoid injury to the vein and artery being used for vascular access is important to give to the patient and care provider. Several jurisdictions have developed "Save my veins" bracelets to remind patients (reference Ontario Renal Network Save the Vein

Campaign http://www.renalnetwork.on.ca/hcpinfo/body_and_vascular_access/save_my_veins/#.Vvv28tIrKiM Accessed March 30, 2016). Less is known about the timing for PD access; however, several programs provide "urgent start" PD, with initiation of PD within days of the PD catheter insertions.¹⁵ Regardless of the pathway, a coordinated multidisciplinary team approach involving the primary care provider, nurse/access coordinator, nephrologists, surgeon, radiologists, patient, and family is needed for choosing and creating the dialysis access suitable for the patient and their lifestyle.¹⁶ Providing the appropriate education and support to each patient can take at least 6 months. This will give the patient sufficient background to make an informed decision regarding their choice of dialysis access (catheter vs synthetic graft vs fistula vs PD catheter) and if a fistula is a feasible option, additional time is needed for maturation.

CHOOSING THE PATIENT-CENTERED VASCULAR ACCESS

Most CKD patients selecting hemodialysis as their RRT are elderly with multiple comorbidities, influencing their life expectancy, need for dialysis, and suitability for an AV access (fistula or graft).¹⁷ The fistula first approach, although desirable for several reasons, may not be the suitable access for these patients.¹⁸ This has promoted a "patient first" approach to vascular access in the CKD clinic, which considers individual patient risks and benefits in addition to informed patient preference.¹⁹

O'Hare and colleagues²⁰ have proposed a patient-centered approach for vascular access, which considers the patients risk of death before need of dialysis, their life expectancy once on dialysis, and their risks of complications with catheters vs fistula and grafts. Risk of death before needing dialysis is common among the elderly with CKD. Recently, predictive models have integrated readily available clinical variables to assist in predicting the mortality risk in elderly patients, which may be useful in guiding clinical decision-making for dialysis access.²¹ Additional predictive scores have predicted the progression of CKD to need for RRT,²² which also can assist with the decisions for timing and type of access creation.

The challenge for the clinician is to integrate these predictive scores with their clinical acumen and knowledge of the patient to create a plan for RRT and need for a dialysis access. Several groups have offered algorithms of care that can assist in deciding on the type of access, although these too need individualization toward the patients' preference, they can assist in decisions regarding the type of access.^{8,23,24} Further enhancement with artificial intelligence and computer programming is needed to present the prediction score results in a simple and

CLINICAL SUMMARY

- Modality and access education should be included in all educational programs so that patients can consider their options and be able to make informed decisions.
- Patients should have an understanding of all the available modalities including HD (incentre and home), PD, kidney transplantation, and conservative care.
- Decisions regarding modality and/or access must be informed by the each patient's risks and benefits, as well as their lifestyle, values, beliefs, and preferences.

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