



An Environmental Scan of Canadian Kidney Transplant Programs for the Management of Patients With Graft Failure: A Research Letter

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Abstract

Background: Kidney transplant recipients with graft failure (KTR-GF) and those with a failing graft are an increasingly prevalent group of patients. Their clinical management is complex, and outcomes are worse than transplant naïve patients on dialysis. In 2023, the Kidney Disease: Improving Global Outcomes (KDIGO) organization reported findings from a controversies conference and identified several clinical practice priorities for KTR-GF.

Objective: As an exercise in needs assessment, we aimed to collate and summarize current practices in adult Canadian kidney transplant programs around these KDIGO-identified clinical practice priorities.

Design: Environmental scan followed by content analysis.

Setting: Canadian adult kidney transplant programs.

Measurements: We categorized the themes of our content analysis around 7 clinical practice priorities: (1) determining prognosis and kidney failure trajectory; (2) immunosuppression management; (3) management of medical complications; (4) preparing for return to dialysis; (5) evaluation and listing for re-transplantation; (6) management of psychological effects; and (7) transition to supportive care.

Methods: We solicited documents that identified each program's current care practices for KTR-GF or patients with a failing graft, including policies, procedures, pathways, and protocols. A content analysis of documents and informal correspondence (email or telephone conversations) was done to extract information surrounding the 7 practice priorities.

Results: Of the 18 programs contacted, 12 transplant programs participated in this study and a document from a provincial organization (where 2 non-responding programs are located) was procured and included in this analysis. Overall, practice gaps and discrepancies were noted. Many participants highlighted the lack of evidence or consensus to guide the management of KTR-GF as the key reason. Immunosuppression management was the most frequently addressed priority. Six programs and the provincial document recommended a nuanced approach to immunosuppressant management based on clinical factors and re-transplant candidacy. Two programs used the Kidney Failure Risk Equation and eGFR to determine referral trajectories and prepare patients for return to dialysis. Exact processes outlining medical management during the transition were not found except for nephrectomy indications and in 1 program that has a specific transition clinic for KTR-GF. All programs have a formal or informal policy that KTR-GF should be assessed for re-transplantation. Referrals for psychological support and transition to supportive care were made on a case-by-case basis.

Limitations: Our environmental scan was at risk of non-response bias and restricted to transplant programs. Kidney clinics and dialysis units may have relevant policies and procedures that were not examined.

Conclusion: The findings from our environmental scan suggest gaps in care and potential areas for quality improvement, including a lack of multidisciplinary care, structured dialysis preparation and psychological support. There is also a need to prioritize research that generates evidence to guide the management of KTR-GF and contributes to the aim of developing clinical practice guidelines.

Abrégé

Contexte: Les receveurs d'une greffe rénale avec perte du greffon (RGR-PG) et ceux dont le greffon est défaillant constituent un groupe de patients de plus en plus répandu. La prise en charge clinique de ces patients est complexe et les résultats sont moins bons que ceux des patients dialysés naïfs de transplantation. En 2023, l'organisme KDIGO (Kidney Disease: Improving



Global Outcomes) a présenté les résultats d'une conférence portant sur les controverses et a identifié plusieurs priorités de pratique clinique pour les RGR-PG.

Objectif: Dans le cadre d'un exercice d'évaluation des besoins, nous avons voulu rassembler et résumer les pratiques actuelles dans les programs canadiens de transplantation rénale chez les adultes en lien avec les priorités de pratique clinique identifiées par le KDIGO.

Conception: Analyse contextuelle suivie d'une analyse du contenu.

Cadre: Les programs canadiens de transplantation rénale chez l'adulte.

Mesures: Nous avons classé les thèmes de l'analyse de contenu autour de sept priorités de pratique clinique: 1) la détermination du pronostic et de la trajectoire de l'insuffisance rénale; 2) la gestion du traitement immunosuppresseur; 3) la prise en charge des complications médicales; 4) la préparation au retour à la dialyse; 5) l'évaluation et l'inscription pour la retransplantation; 6) la gestion des effets psychologiques; et 7) la transition vers les soins de soutien.

Méthodologie: Nous avons sollicité les documents (politiques, procédures, parcours, protocoles) des programs de transplantation qui décrivent les pratiques de soins actuelles pour les RGR-PG ou les patients avec un greffon défaillant. Une analyse du contenu de ces documents et de la correspondance informelle (courriels ou conversations téléphoniques) a été effectuée pour en extraire les données sur les sept priorités de pratique.

Résultats: Des 18 programmes de transplantation contactés, 12 ont participé à l'étude et un seul document provenant d'une organisation provinciale (où se trouvent deux programmes n'ayant pas participé) a été obtenu et inclus dans l'analyse. Dans l'ensemble, on a observé plusieurs lacunes et divergences dans la pratique. La principale raison donnée par plusieurs participants étant le manque de données ou de consensus pour guider la prise en charge des RGR-PG. La gestion du traitement immunosuppresseur était la priorité la plus fréquemment abordée. Le document provincial et six programmes recommandaient une approche nuancée, fondée sur les facteurs cliniques et la candidature à la retransplantation, pour la gestion du traitement immunosuppresseur. Deux programmes utilisaient l'équation KFRE (Kidney Failure Risk Equation) et le DFGe pour aiguiller les patients et les préparer à retourner en dialyse. Nous n'avons pas trouvé de processus précis décrivant spécifiquement la prise en charge médicale pendant la transition, mis à part dans les indications de néphrectomie et un programme ayant une clinique de transition spécifique aux RGR-PG. Tous les programmes disposent d'une politique formelle ou informelle indiquant que les RGR-PG doivent être évalués pour la retransplantation. Les aiguillages vers du soutien psychologique et la transition vers les soins de soutien sont traités au cas par cas.

Limites: L'analyse contextuelle présentait un risque de biais de non-réponse et elle a été limitée aux programmes de transplantation. Les cliniques de soins rénaux et les unités de dialyse pourraient disposer de politiques et de procédures pertinentes qui n'ont pas été examinées.

Conclusion: Les résultats de l'analyse contextuelle suggèrent qu'il existe des lacunes dans les soins et de possibles domaines d'amélioration de la qualité. On a notamment observé un manque de soins multidisciplinaires, de préparation structurée à la dialyse et de soutien psychologique. Il est également nécessaire de prioriser la recherche produisant des données probantes afin de guider la prise en charge des RGR-PG et l'élaboration de lignes directrices de pratique clinique.

Keywords

graft failure, psychosocial support, transitions of care, kidney transplantation, environmental scan, content analysis

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Introduction

Kidney transplantation is regarded as the best treatment option for eligible patients with kidney failure. However, 1 in 5 patients is estimated to lose their graft within 5 years of transplantation and over half within 10 years.^{1,2} In Canada, the unadjusted 10-year graft survival rates in adult kidney transplant recipients are between 58% and 77% depending on the donor type.³ As patient longevity improves and the number of transplantations being performed increases, kidney transplant recipients with graft failure (KTR-GF) will continue to grow.^{1,2}

The management of KTR-GF is complex, and outcomes are worse than matched transplant-naïve patients with kidney failure.⁴ Reasons postulated for poor outcomes are multilayered and may be due to uncertainties in care and lack of evidence to guide practices.^{5,6} In 2023, the Kidney Disease: Improving Global Outcomes (KDIGO) organization reported clinical practice priorities in managing KTR-GF.⁶ As a needs assessment exercise, we aimed to collate and summarize current practices in place in adult Canadian kidney transplant programs surrounding these clinical practice priorities.

Methods

Our approach was an environmental scan followed by a content analysis. Environmental scanning involves gathering information to direct organizational planning and change.⁷ Content analysis entails “systematic and objective means to make valid inferences from data in order to describe and quantify specific phenomena.”^{8,9}

Data Collection

We sought to collect data from 18 adult kidney transplant programs and contacted a leader in each program by email. We explained the purpose and scope of the study and solicited documents that identified their program’s current care practices for KTR-GF or patients with a failing graft. We will use the term KTR-GF to collectively define these 2 groups. Each leader was contacted at least 3 times. In the case of non-responders, we identified an alternate individual who was contacted at least twice. For some programs, no official document exists; however, practices were summarized by the participant over email or a phone conversation with the research team.

Data Synthesis

We categorized the themes of our content analysis around 7 practice priorities (Table 1 and Supplementary Figure 1).⁶ A content analysis of the documents and informal correspondence (email or telephone) was done to extract information surrounding these 7 priorities. We recorded all relevant information to ensure consistency and thoroughness in the

extraction process. Following data extraction, the collected information was organized and synthesized by 1 team member (S.S.) and confirmed by participating authors at their respective sites.

Results

Of the 18 programs contacted, 12 responded. For 2 programs that did not respond, we procured a provincial document and included it in the analysis.

Current Practices

Six transplant programs reported no formal policy, pathway, procedure, or practice in place. Two programs had a practice document. Another 2 reported that they had a transition appointment (as patients transition to dialysis), and one of these programs also provided documentation from a working group. The remaining 2 shared emails or phone correspondence. They reported their practices surrounding an immunosuppression board and a specialized transition clinic that has been set up in their respective programs. The provincial document obtained was a clinical guideline. Thus, our content analysis of documents and correspondence included 12 transplant programs and 1 provincial organization (Table 1).

I. Determining prognosis and kidney failure trajectory. Transplant programs 3 and 7 reported using the Kidney Failure Risk Equation (KFRE) risk prediction model and an eGFR threshold to determine referral trajectories but not the prognosis of the graft. Program 3 developed an action plan to implement a province-wide referral for home dialysis modalities using pre-defined thresholds (KFRE >50% or eGFR <15%). However, program 7 uses specific thresholds to refer to a transition clinic (2-year risk of kidney replacement therapy or KFRE-2 \geq 10%), to initiate discussions about re-transplantation or dialysis modality (KFRE-2 >25% with eGFR <18 when planning a living donor re-transplant or KFRE-2 >40% with eGFR <15 when planning for a deceased donor re-transplant), or to refer for access placement (KFRE-2 >40% with eGFR <12).

II. Immunosuppression management. The provincial program and 6 transplant programs have an immunosuppression management plan based on whether patients are re-transplant candidates or not. If not, residual kidney function is used for tapering decisions. The most common approach was to stop or taper off the anti-metabolite followed by the calcineurin inhibitor. Other factors guiding management were anticipated time to re-transplantation and immune sensitization. The immunosuppression board of program 4 reported assessing other clinical factors, such as a history of malignancy and infections. An important finding was that the provincial document and transplant programs 1, 3, 4, and 7 have a communication mechanism to relay the

Table 1. A Snapshot of Current Practices in Canadian Kidney Transplant Programs Surrounding 7 KDIGO-Identified Clinical Practice Priorities in Managing Kidney Transplant Recipients With Graft Failure or a Failing Graft.

Institute	Existing practice, procedure, pathway or policy	Determining prognosis and kidney failure trajectory	Immunosuppression management	Management of medical complications	Preparing for return to dialysis	Evaluation and listing for re-KT	Management of psychological effects	Transition to supportive care
Provincial program ^a	Publicly available clinical guideline (revised 2021)	-	Withdrawal protocol outlined in those who are not re-KT candidates	Indications for transplant nephrectomy outlined	-	A general recommendation to pursue pre-emptive LDKT	-	-
Transplant program 1	A practice direction document (revised 2021)	-	Withdrawal protocol and another for monitoring levels while on dialysis	Recommendations for malignancy screening and indications for transplant nephrectomy outlined	-	A visit with transplant nephrologist to determine candidacy	-	-
Transplant program 2	Informal practices	-	-	-	-	-	-	-
Transplant program 3	A working group since May 2023 and a transition appointment	KFRE or eGFR to determine referral to home dialysis and re-KT	Withdrawal protocol when re-KT not expected within 6 months to 1 year	Indications for transplant nephrectomy mentioned	A shared care model being developed with nephrology clinics	A transition appointment	-	-
Transplant program 4	An immunosuppression board that meets once a month	-	The board reviews each patient individually	-	-	-	-	-
Transplant program 5	Informal practices	-	-	-	-	-	-	-
Transplant program 6	Informal practices	-	-	-	-	-	-	-
Transplant program 7	A specialized transitional clinic since 2017	KFRE-2 and/or eGFR to initiate discussions related to re-KT, dialysis, and access creation	Withdrawal protocol and monthly drug-level monitoring while on dialysis	Multidisciplinary team follows patients	Preparing for dialysis, modality selection and access creation based on eGFR and KFRE thresholds	Preparation for pre-emptive living donor or deceased donor KT based on eGFR and/or KFRE-2 thresholds	-	-
Transplant program 8	Clinical practice guidelines (revised 2022)	-	Withdrawal protocol	-	-	-	-	-
Transplant program 9	Informal practices	-	-	-	-	-	-	-
Transplant program 10	Informal practices	-	-	-	-	-	-	-
Transplant program 11	A transition appointment	-	-	-	-	A visit with a transplant nephrologist to systematically evaluate re-KT candidacy	-	-
Transplant program 12	Informal practices	-	A weaning approach	-	-	-	-	-

^aProcured from a provincial renal program.

eGFR: estimated glomerular filtration rate; KFRE: Kidney Failure Risk Equation; KT: kidney transplantation; LDKT: living donor kidney transplantation.

immunosuppression management plan to the dialysis team. This is done by either using the patient's electronic medical record or via a consult note/letter (Supplementary Table 1).

III. Management of medical complications. The scope of this priority was rather broad, covering subjects of frailty, cognitive decline, and anemia management among others. Also, it seemed to overlap with some of the other priorities, such as dialysis preparation. Program 7 reported a specific transition clinic where a multidisciplinary team follows KTR-GF (nurse, transplant nephrologist, dietitian, educator, access coordinator, and pharmacist). The care provided was similar to that of transplant-naïve patients nearing dialysis. Other than that, nearly all programs have a formal or informal policy that KTR-GF do not need to follow up with a transplant clinic unless there is a specific transplant-related issue. Some programs specified criteria for transplant nephrectomy (Supplementary Table 2). Program 1 mentioned age-appropriate cancer screening and annual skin screening, and program 3 is developing an action plan surrounding this priority.

IV. Preparing for return to dialysis. Two programs reported having a formal structure in place to help prepare patients for dialysis. Program 7 has a multidisciplinary transition clinic and uses KFRE/eGFR to direct dialysis modality preparation and access creation. Program 3 is currently developing a shared care model to outline roles and responsibilities, determine the frequency of bloodwork and follow-up, and set patient expectations. They plan to implement KFRE or eGFR thresholds for referral for home dialysis modalities.

V. Evaluation and listing for re-transplantation. All programs have a formal or informal policy that KTR-GF should be assessed by the transplant program to determine their eligibility for a re-transplant (see Table 1). However, except for program 7, how this evaluation was facilitated and implemented was not described. As mentioned above, program 7 uses KFRE and eGFR thresholds to identify and refer patients to their pre-kidney transplant recipient assessment clinic. No specific referral or evaluation criteria for re-transplantation were identified by any other program.

VI. Management of psychological effects and VII. Transition to supportive care. In all programs, referrals to palliative care, psychiatry, or psychology are made on a case-by-case basis.

Discussion

In this descriptive work, we report variable models, practice gaps, and discrepancies. Many participants highlighted the lack of evidence or consensus to guide the management of KTR-GF. Extrapolating evidence from studies done on transplant-naïve patients with kidney failure is generally discouraged,⁶ and good quality prospective work is lacking. We also report the lack of

structured psychological and supportive care as key practice gaps. The psychological impact of graft failure is immense, and KTR-GF and their caregivers have identified this care priority in prior studies.¹⁰

A few other findings merit discussion. In KTR-GF, a nuanced approach to immunosuppression management is needed. Although such an approach is adopted by most Canadian transplant programs, a harmonized approach may ensure consistency in practice. Also, the KDIGO controversies conference recommends a multidisciplinary patient integrated care clinic for those with a failing graft. Although they state that there is limited evidence that it improves outcomes, KTR-GF have identified multidisciplinary health care approaches as a coping strategy.¹⁰ One Canadian transplant program has such a clinic in place (transplant program 7). This may allow a pragmatic comparative study across programs with variable practices to generate evidence to support multidisciplinary care models.

A limitation of our environmental scan is that we only looked at transplant programs. We acknowledge that individual kidney clinics and dialysis units may have policies and procedures that were not examined. Regardless, transplant programs ought to take a lead in this process given the nuances and dimensions of care priorities, which may not be in the scope of practice of general nephrology.⁵ In addition, our environmental scan had a narrow focus in terms of information sources. A limitation is that 2 programs only provided information via unstructured interviews or email correspondence and 6 programs did not participate. We also acknowledge that programs may have a more individualized approach to patient care that has not been formalized.

Regardless, the findings from our environmental scan suggest gaps in care and evidence. We also identified potential areas for quality improvement, including a lack of multidisciplinary care, structured dialysis preparation, and psychological support. Most importantly, there is a need to prioritize research that generates evidence to guide the management of KTR-GF, with the aim of eventually developing clinical practice guidelines. Given that the transplant community has promoted and increased kidney transplantation, it is our responsibility to improve patient care at all stages of a patient's transplantation journey.

Ethics Approval and Consent to Participate

This work was exempt from ethics review based on the existing policies of the Research Ethics Board at the McGill University Health Centers.

Consent for Publication

Not applicable.

Availability of Data and Materials

All data presented in the manuscript.

Declaration of Conflicting Interests

The author(s) declared the following potential conflicts of interest with respect to the research, authorship, and/or publication of this article: Dr S.S. has received an education grant from Amgen Canada to improve the outcomes of patients with graft failure. The rest of the authors have no relevant disclosure.

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Supplemental Material

Supplemental material for this article is available online.

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