ISSN 2607-9917 www.bdd.rdplf.org Volume 9, n° 1, March 2026 https://www.doi.org/10.25796/bdd.v9i1.87097

Bulletin de la Dialyse à Domicile

Home Dialysis Bulletin (BDD)

International bilingual journal for the exchange of knowledge and experience in home dialysis

(English edition) (version française disponible à la même adresse)

Managing peritoneal dialysis catheter after kidney transplant

(Prise en charge du cathéter de dialyse péritonéale après une greffe rénale)

Beatriz Gil Braga[1], Sofia Leitão e Sousa[2], Ana Cunha[1], Isabel Fonseca[1,3,4], Maria João Carvalho[1,3,4], Anabela Rodrigues[1,3,4], Joana Tavares[1,3]

[1]Service de néphrologie, Unidade Local de Saúde de Santo António ; Largo do Professor Abel Salazar, 4050-366, Porto, Portugal
[2]Service de néphrologie, Hospital do Divino Espírito Santo, Ponta Delgada, Avenida D. Manuel I 9500-370 Ponta Delgada São Miguel – Açores. Portugal
[3]UMIB - Unidade Multidisciplinar de Investigação Biomédica, ICBAS - Instituto de Ciências Biomédicas Abel Salazar, Universidade do Porto, Rua Jorge de Viterbo Ferreira,228. 4050-313, Porto, Portugal
[4]ITR - Laboratoire de recherche intégrative et translationnelle en santé des populations, Porto, Portugal UMIB- Unité de recherche multidisciplinaire en biomédecine ; Rua Jorge de Viterbo Ferreira, 228. 4050-313 Porto, Portugal

To cite: Gil Braga B, Leitão e Sousa S, Cunha A, Fonseca I, Carvalho MJ, Rodrigues A, Tavares J. Managing peritoneal dialysis catheter after kidney transplant. Bull Dial Domic [Internet]. 2026;9(1):1-11. Available at doi URL: https://doi.org/10.25796/bdd.v9i1.87097

Summary

Background:
The optimal way of managing of peritoneal dialysis (PD) catheters after kidney transplantation (KT) remains unclear, and clinical practices vary widely. Catheter retention allows access to kidney replacement therapy (KRT) in cases of delayed graft function (DGF), yet it may increase infectious risk in an immunosuppressed population.
Methods:
We conducted a retrospective single-center study that included adult patients previously treated with PD who underwent KT between 2013 and 2023. The primary outcome was the occurrence of clinically significant PD catheter-related infectious complications leading to catheter removal after transplantation. Secondary outcomes included DGF, post-transplant kidney replacement therapy, and dialysis modality. Univariable analyses were performed.
Results:
A total of 132 patients were included in this study. Among the 122 patients who retained their PD catheter after KT, 21 (17.2%) developed infectious complications requiring catheter removal, most commonly exit-site infections. No deaths were attributable to PD catheter-related infections, although 52.3% of affected patients required hospitalization. Sixteen patients (12.1%) required KRT due to DGF, with PD successfully resumed in most cases. No significant associations were identified between infection risk and donor type, recipient characteristics, or timing of catheter removal.
Conclusions:
Clinically significant PD catheter-related infections after KT are not negligible and often occur despite adherence to guideline-recommended catheter retention. In patients at low risk of DGF or with alternative dialysis access, earlier catheter removal may reduce infectious morbidity. We propose a pragmatic, risk-based algorithm to support individualized decision-making regarding PD catheter management after KT. This framework is hypothesis-generating and requires validation in larger, multicenter studies.

Keywords: peritoneal dialysis; catheters; kidney transplantation; delayed graft function; renal replacement therapy

Résumé

Contexte :
La prise en charge optimale des cathéters de dialyse péritonéale (DP) après une transplantation rénale (TR) reste incertaine, et les pratiques cliniques varient considérablement. Si le maintien du cathéter permet d'avoir recours à un traitement de substitution rénale en cas de fonction retardée du greffon (FRG), il peut augmenter le risque infectieux chez une population immunodéprimée.
Méthodes :
Nous avons mené une étude rétrospective monocentrique incluant des patients adultes précédemment traités par DP et ayant subi une TR entre 2013 et 2023. Le critère d'évaluation principal était la survenue de complications infectieuses cliniquement significatives liées au cathéter de DP entraînant le retrait du cathéter après la transplantation. Les critères d'évaluation secondaires comprenaient la FRG, le traitement de substitution rénal (TSR) post-transplantation et le mode de dialyse. Des analyses univariables ont été réalisées.
Résultats :
Au total, 132 patients ont été inclus. Parmi les 122 patients qui ont conservé leur cathéter de DP après une transplantation rénale, 21 (17,2 %) ont développé des complications infectieuses nécessitant le retrait du cathéter, le plus souvent des infections au site de sortie. Aucun décès n'a été attribué à des infections liées au cathéter de DP, bien que 52,3 % des patients concernés aient dû être hospitalisés. Seize patients (12,1 %) ont néessité un TSR en raison d'un FRG, la DP ayant été reprise avec succès dans la plupart des cas. Aucune association significative n'a été identifiée entre le risque d'infection et le type de donneur, les caractéristiques du receveur ou le moment du retrait du cathéter.
Conclusions :
Les infections cliniquement significatives liées au cathéter de DP après une transplantation rénale ne sont pas négligeables et surviennent souvent malgré le respect des recommandations des lignes directrices en matière de conservation du cathéter. Chez les patients présentant un faible risque de FRG ou disposant d'un autre accès pour la dialyse, le retrait précoce du cathéter peut réduire la morbidité infectieuse. Nous proposons un algorithme pragmatique, basé sur les risques, pour aider à la prise de décision individualisée concernant la gestion du cathéter de DP après une transplantation rénale. Ce cadre est générateur d'hypothèses et doit être validé dans le cadre d'études multicentriques à plus grande échelle.

Mots-clés : dialyse péritonéale ; cathéters ; transplantation rénale ; fonction rénale retardée ; traitement de substitution rénale

journal officiel du Registre de Dialyse Péritonéale de Langue Française RDPLF www.rdplf.org

Introduction

Peritoneal dialysis (PD) is an effective kidney replacement therapy (KRT) with outcomes comparable to those of hemodialysis; however, it remains underutilized worldwide (1). Kidney transplantation (KT), when achievable, is considered the optimal KRT. An important aspect of the KT process is the management of the PD catheter, as it may influence patient and graft outcomes (2). Currently, no consensus has been reached regarding the optimal timing for PD catheter removal after transplantation. Although some authors report a lower incidence of delayed graft function (DGF) in patients previously treated with PD, European guidelines suggest that the catheter may be left in situ for 3–4 months despite a functioning graft (3, 4). The main advantage of this approach is the possibility of performing KRT in the event of graft non-function due to post-transplant complications, thereby avoiding the need for additional devices such as a hemodialysis central venous catheter (5).

With regard to PD, infectious complications are the most frequent adverse events and may involve the exit site or tunnel and, in more severe cases, progress to peritonitis. Moreover, kidney transplant recipients are at particularly high risk of infectious complications because of immunosuppressive induction regimens (6). This study aimed to evaluate outcomes related to PD catheter management after KT by analyzing data from our center on PD catheter-associated infectious complications and catheter use after KT and to propose a tailored algorithm for PD catheter removal following KT.

Methods

We conducted a retrospective single-center study that included all adult patients previously treated with PD who underwent KT at our center between January 1, 2013, and June 30, 2023. The study was conducted in accordance with the Declaration of Helsinki, and informed consent was obtained according to institutional requirements.

The primary outcome was the occurrence of clinically significant PD catheter-related infectious complications leading to PD catheter removal after KT. Infectious complications were defined as exit-site infection, intraoperative evidence of purulent discharge, tunnel infection, or peritonitis when these events resulted in the clinical decision to remove the PD catheter.

Less severe infectious events that were treated conservatively and did not result in catheter removal were not included in the primary outcome, and this approach was chosen to focus on events with direct clinical and logistical impact.

Secondary outcomes included the occurrence of delayed graft function (DGF), the need for KRT after transplantation, and the dialysis modality used.

Patients whose PD catheters were removed during KT surgery were excluded from the primary outcome analysis but were included in the analysis of secondary outcomes.

PD catheter management and follow-up

PD Catheter management and follow-up extended from the time of KT until PD catheter removal.

*journal officiel du **R**egistre de **D**ialyse **P**éritonéale de **L**angue **F**rançaise* **RDPLF** www.rdplf.org

www.bdd.rdplf.org Volume 9, n° 1, March 2026
https://www.doi.org/10.25796/bdd.v9i1.87097
ISSN 2607-9917

Before hospital discharge, catheter extensions were removed by the PD nursing team to reduce the risk of contamination. Exit-site care consisted exclusively of cleansing using soap and water.

PD catheters were removed according to institutional practice once graft function was considered stable, typically after the first post-transplant month. Catheter removal was performed by mini-laparotomy by a dedicated surgical team. Direct measures of graft function or graft survival were not evaluated.

Descriptive statistics were used to characterize the study population. Continuous variables were expressed as medians with interquartile ranges (IQRs) and categorical variables as absolute numbers and percentages. Normality was assessed using the Kolmogorov–Smirnov test.

Comparisons between patients with and without PD catheter-related infections were performed using the Mann–Whitney U test for continuous variables and the chi-square or Fisher's exact test for categorical variables, as appropriate.

Given the limited number of infectious events, multivariable analysis was not performed as this would have resulted in an unfavorable events-per-variable ratio and an increased risk of model overfitting and unstable estimates. Therefore, results are presented as univariable comparisons. Time-to-event analyses accounting for competing risks were not performed, given the retrospective design and the limited number of events. Statistical analyses were conducted using IBM SPSS Statistics, version 29 (IBM Corp., Armonk, NY). A two-sided p-value <0.05 was considered statistically significant.

On the basis of our institutional experience and clinical practice, we developed a pragmatic, hypothesis-generating decision-making algorithm to guide the timing of PD catheter removal after KT. The algorithm considers infection risk and postoperative dialysis needs and aims to provide a standardized approach to catheter management in the post-transplant setting.

Results

Population Characteristics

A total of 132 patients undergoing PD were admitted for KT surgery during the study period. The demographic and clinical characteristics of these patients are summarized in *Table 1*. Among the cohort, 69 patients (52.3%) were male, with a median age at transplantation of 48.4 years (IQR 41–57). Eleven patients (8.3%) had a functioning vascular access at the time of KT.

Table 2 summarizes the distribution of chronic kidney disease etiologies in the study cohort, with unknown/indeterminate causes being the most frequent (n = 50; 37.9%), followed by glomerular and cystic diseases.

journal officiel du Registre de Dialyse Péritonéale de Langue Française RDPLF www.rdplf.org

www.bdd.rdplf.org Volume 9, n° 1, March 2026
https://www.doi.org/10.25796/bdd.v9i1.87097
ISSN 2607-9917

Table I. Characteristics of PD patients admitted for KT

Characteristics	
Median age at transplantation (IQR), years	48.4 (41–57)
Median PD time (IQR), months	44.0 (21–71)
Gender	
Male, n (%)	69 (52.3)
Female, n (%)	63 (47.7)
Type of donor	
Deceased	88 (66.7)
Living	44 (33.3)
Number of patients who removed PD catheter during KT surgery, n (%)	10 (7.6)
Mortality rate, %	2.5%
Infections related to PD in the 3 months before KT, n (%)	19 (14.4)
Documented infections in the pre-KT period, n (%)	
Exit-site infection	11 (57,9)
Tunnel infection	4(21.1)
Peritonitis	4(21.1)
Diabetes mellitus pre or por KT n (%)	
Yes	11 (8.3)
No	103 (780)
Missing	19 (14.4)
Functioning vascular access at the time of KT, n (%)	**11 (8.3)**
Immunosuppressant treatment before KT, n (%)	**15 (11.4)**
Renal residual function, n (%)	**115 (87.1)**

PD – peritoneal dialysis; KT – kidney transplant

Table II. Chronic kidney disease etiology

Chronic kidney disease etiology	**N (%)**
Unknown/indeterminate	50 (37.9)
Glomerular diseases	36 (27.3)
Cystic diseases	15 (11.4)
Urologic/obstructive diseases	11 (8.3)
Tubulointerstitial diseases	6 (4.5)
Diabetic nephropathy	6 (4.5)
Vascular nephropathies	4 (3.0)
Hereditary diseases	3 (2.3)
Thrombotic microangiopathy	1 (0.8)

With regard to prior KRT, 30 (22.7%) patients had undergone a previous period of hemodialysis. Donor characteristics included 88 (66.7%) deceased donors, 44 (33.3%) living donors, and 21 (15.9%) donors classified as expanded-criteria donors. Nineteen patients (14.4%) had a history of PD-related infectious complications in the three months preceding transplantation. Of these, 10 patients underwent PD catheter removal during KT surgery based on risk assessment, with eight

journal officiel du Registre de Dialyse Péritonéale de Langue Française RDPLF www.rdplf.org

https://www.doi.org/10.25796/bdd.v9i1.87097
ISSN 2607-9917

cases attributed to ongoing or recent PD-associated infections requiring antibiotic treatment. During the study period, three patients died with the PD catheter still in situ. None of these deaths were related to PD catheter complications. The causes of death were lung carcinoma, acute myocardial infarction, and septic shock secondary to pneumonia.

Primary Outcomes – PD Catheter-Related Infections

The median time to PD catheter removal after KT was four and a half months (IQR 0–41). One patient retained the catheter for an extended duration due to personal preference and graft dysfunction.

Of the 122 patients who retained their PD catheter post-KT, 21 (17.2%) developed PD catheter-related infectious complications that led to catheter removal. These included 16 cases (76.2%) of exit-site infections, two cases (9.5%) of tunnel infections, and three cases (14.3%) of peritonitis (two occurring in the same patient). Among these, only two patients had a prior history of PD catheter infections within the three months before transplantation.

More than half (52.3%) of the patients with PD-related infections required hospitalization as our center requires hospitalization for PD catheter removal due to logistical reasons; however, no deaths were attributable to these infections. Microbiological findings are detailed in *Table_III*. The mean catheter removal time in this subgroup was three months (range 0–23), with only 25% of catheters removed within four months post-transplantation. Among all patients who developed any PD-related infection, three (14.3%) were on previous immunosuppressant therapy for another cause prior to KT.

Table III. Isolated microorganisms in PD infectious complications after KT

Isolated microorganisms	**n**
Exit site infection	**16**
Pseudomonas aeruginosa	6
Pseudomonas aeruginosa and Serratia species	1
Pseudomonas aeruginosa and Corynebacterium species	1
Corynebacterium species	1
Staphylococcus epidermidis	1
Polymicrobial infection of gram-positive microorganisms	1
Non-identified	5
Tunnel infection	**2**
Pseudomonas aeruginosa	1
Non-identified	1
Peritonitis	**3**
Pseudomonas aeruginosa and Enterococcus faecium	1
Pseudomonas aeruginosa	2
Total	**21**

Secondary Outcomes – Kidney Replacement Therapy
Sixteen patients (12.1%) required KRT due to delayed graft function *(Figure 1)*.

www.bdd.rdplf.org Volume 9, n° 1, March 2026
https://www.doi.org/10.25796/bdd.v9i1.87097
ISSN 2607-9917

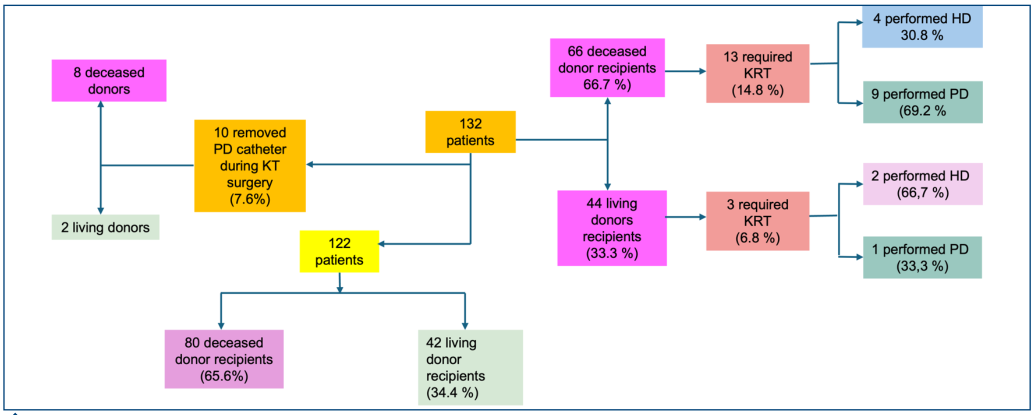


Figure 1. Characteristics of the population, infectious complications, and need for KRT.

Of these, 10 patients (62.5%) utilized PD, while six (37.5%) required hemodialysis (four via central venous catheter and two via arteriovenous fistula [AVF]).

In one case, the PD catheter was removed during KT surgery, and an AVF was used as an alternative dialysis access. In two cases, attempted PD was unsuccessful due to peritoneal laceration during surgery, necessitating hemodialysis. In the remaining cases, the dialysis modality was determined by the medical team.

Among patients who underwent living donor KT (n = 44), two (4.5%) had their PD catheter removed during KT surgery. Of those who retained their catheters, six patients (13.6%) experienced infectious complications, all of which were exit-site infections, including two cases with pre-existing PD infections. Three patients (6%) in this subgroup required KRT, with one utilizing the PD catheter due to graft failure and two requiring hemodialysis.

Risk Factors for PD-Related Infections

Potential risk factors for PD-related infections were analyzed. No statistically significant associations were observed with sex ($p = 0.803$), donor type ($p = 0.801$), prior PD infections within three months ($p = 0.523$), diabetes mellitus ($p = 1.000$), or delayed graft function ($p = 0.720$).

Similarly, no significant differences were found between patients with and without infections regarding recipient age ($p = 0.398$), donor age ($p = 0.911$), or the timing of catheter removal ($p = 0.877$).

Discussion

There is currently no established global consensus on the optimal timing for PD catheter removal in KT recipients. Most existing literature that addresses this topic is limited and largely focuses on pediatric transplant populations (7). In this population, patients often receive living-donor kidney transplants with high-quality grafts. Considering this situation and the fact that subjecting children to two surgical procedures would not be ideal, removing the PD catheter is the best option. Our findings indicate that clinically significant PD catheter-related infectious complications requiring catheter removal are not negligible in the post-transplant period, affecting

journal officiel du Registre de Dialyse Péritonéale de Langue Française RDPLF www.rdplf.org

https://www.doi.org/10.25796/bdd.v9i1.87097
ISSN 2607-9917

17% of cases. Notably, most infections in our cohort occurred despite adherence to the European Best Practice Guidelines for PD catheter removal timing. This result aligns with prior studies that reported similar infection rates (8). Importantly, most infections were exit-site infections, and no deaths were attributed to PD catheter complications. However, logistical challenges in hospital settings led to approximately half of the affected patients requiring hospitalization, inherently increasing morbidity and mortality risks.

One potential explanation for the high post-transplant infection risk, apart from the use of high-dose immunosuppressants (8), is a shift in patient focus. After transplantation, patients may pay less attention to PD catheter exit-site care, which previously was a daily priority. This issue underscores the need to address exit-site care in post-transplant consultations for patients retaining their PD catheters (9). Such care includes always washing hands before catheter manipulation, regular cleaning of the exit site with water and appropriate soap**, and** securing the catheter in place (10).

Our findings also revealed that 12% of patients required KRT due to DGF, a figure that rose to nearly 40% in recipients of kidneys from expanded criteria donors. Most patients who required KRT resumed PD without complications, demonstrating the feasibility of continuing PD after KT (1). However, two patients experienced challenges, such as peritoneal laceration or ultrafiltration failure, necessitating a transition to hemodialysis. These cases highlight the complexities associated with resuming PD in the post-transplant period.

In recipients of living donor transplants, only 4.5% underwent PD catheter removal during surgery, while 13.6% of those retaining their catheters developed infectious complications. Two of these patients had a history of PD-related infections within the preceding three months, suggesting that earlier catheter removal may be warranted in selected cases. Notably, the rate of DGF was lower in living donor transplants than in expanded criteria donor transplants, supporting the safety of earlier catheter removal in this group (11).

In patients with PD-related infections, the median time to catheter removal was four months, raising the possibility that earlier removal could have mitigated infections. Our findings suggest that patients at low risk for DGF, such as living donor recipients or those with alternative dialysis access (e.g., AVF), may benefit from catheter removal during KT surgery. Conversely, the higher rate of infectious complications compared with cases of DGF supports the need to adopt a cautious approach that favors early removal in selected patients.

Limitations

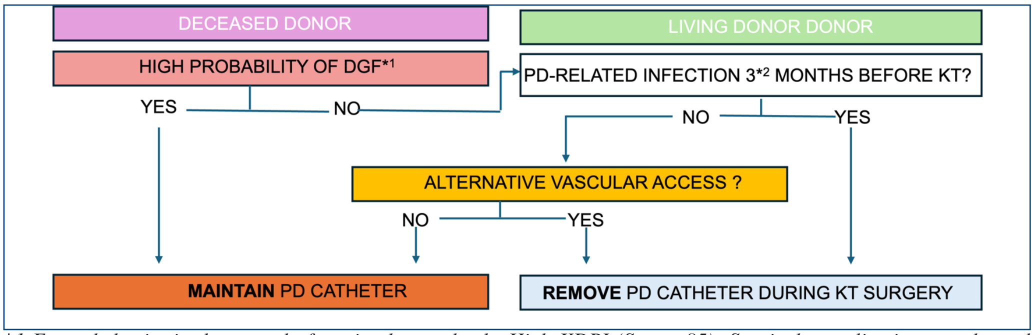
This study has several limitations. First, due to the relatively small number of infectious events, we were unable to perform multivariable analyses to adjust for potential confounders. Performing such analyses under these conditions could have led to model overfitting and unreliable effect estimates. In addition, a time-to-event analysis with competing risks would have been a more appropriate methodological approach to address catheter retention and removal; however, this was not feasible given the limited number of events. Additionally, the extended study period may have introduced heterogeneity in clinical practices, including immunosuppressive regimens, surgical techniques, exit-site care protocols, and donor selection criteria, which represents a potential source of bias.

journal officiel du Registre de Dialyse Péritonéale de Langue Française RDPLF www.rdplf.org

www.bdd.rdplf.org Volume 9, n° 1, March 2026
https://www.doi.org/10.25796/bdd.v9i1.87097
ISSN 2607-9917

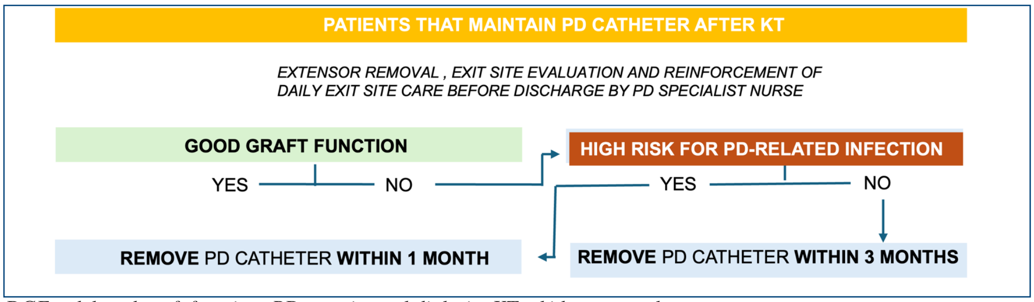
Proposed Algorithm

On the basis of our findings, we propose an algorithm to guide decision-making regarding PD catheter removal in KT recipients *(Figures 2 and 3)*. This algorithm reflects our single-center experience and should be interpreted in light of the observational nature of the study. It is not intended to be prescriptive but rather to provide a pragmatic framework to support individualized clinical decision-making. External validation in larger, multicenter cohorts is required before broader clinical application.



**1-Expanded criteria donor and after circulatory death; High KDPI (Score>85); Surgical complications; prolonged ischemia time (>24)*
°2 - Especially if recurrent infections or aggressive microbes

Figure 2. Proposed flowchart regarding timing of removal of PD catheter in KT patients
DGF – delayed graft function; PD – peritoneal dialysis; KT – kidney transplant



DGF – delayed graft function; PD – peritoneal dialysis; KT – kidney transplant

Figure 3. Proposed flowchart regarding the timing of catheter removal in patients who maintained it after KT
KT – kidney transplant; PD – peritoneal dialysis

Living Donor Transplants

Living donor KT is typically a planned procedure with a lower risk of DGF. As such, the threshold for removing the PD catheter during surgery should be low, particularly in patients with no history of recent PD-related infections or those with alternative dialysis access.

If prior infections are present or intraoperative complications (e.g., vascular issues) increase the risk of DGF, then the catheter can be retained, with an earlier planned removal once graft function stabilizes.

Deceased Donor Transplants

In deceased donor transplants, the risk of DGF is influenced by donor and recipient factors, including expanded criteria donor status, ischemia time, and surgical complications (12–15). For

journal officiel du Registre de Dialyse Péritonéale de Langue Française RDPLF www.rdplf.org

patients with a high risk of DGF, retaining the PD catheter may be prudent.

Conversely, patients with a history of aggressive infections (e.g., Pseudomonas, Acinetobacter, Stenotrophomonas, or fungi) within the preceding three months (16) should have their PD catheters removed during surgery. Removal is also advisable if an alternative dialysis access is available, minimizing the need for external device placement in the event of KRT requirements. Our algorithm aims to balance the risks of infection and the potential need for PD catheter use after KT, supporting a tailored approach to this critical aspect of KRT transition.

Conclusions

Clinically significant PD catheter-related infections requiring catheter removal in the post-transplant period represent a significant concern, particularly given the daily care burden imposed on newly transplanted patients. Our results suggest that earlier PD catheter removal is advantageous in patients at low risk for DGF, such as living donor recipients, or those at high risk of infection.

We propose a pragmatic, risk-based algorithm intended to support individualized decision-making regarding PD catheter management after KT, prioritizing a patient-specific approach that considers donor type, prior infection history, and alternative dialysis access. While further research is needed to validate this approach, we hope this algorithm provides a valuable framework for optimizing outcomes during the transition from PD to KT.

Authors' Contributions

Beatriz Gil Braga: draft of the article
Sofia Leitão e Sousa: draft and critical review of the article
Ana Cunha: draft and critical review of the article
Isabel Fonseca: statistical analysis
Maria João Carvalho: critical review of the article
Anabela Rodrigues: critical review of the article
Joana Tavares: concept, draft and critical review of the article

Ethical Considerations and patient consent

In accordance with the recommendations of the ICMJE and COPE, no consent was required because the cases were completely anonymized and analyzed using the institution's records, which guaranteed their anonymity.

Data Availabilité Statement

The data used are available from the author upon reasonable request.

Funding

The authors received no funding for this study.

Conflicts of Interest

The authors have no conflicts of interest to declare and have received no financial support.

ORCID iDs
Béatriz Gil Braga : https://orcid.org/0009-0006-8924-0810
Sofia Leitão e Sousa : https://orcid.org/0009-0004-9923-5973
Ana Cunha : https://orcid.org/0000-0001-7755-128X
Isabel Fonseca : https://orcid.org/0000-0001-8984-1751
Maria João Carvalho : https://orcid.org/0000-0003-4374-2867
Joana Manuel Tavares : https://orcid.org/0000-0002-3776-4923

Références

1. Gardezi AI, Muth B, Ghaffar A, Aziz F, Garg N, Mohamed M, Foley D, Kaufman D, Djamali A, Mandelbrot D, Parajuli S. Continuation of peritoneal dialysis in adult kidney transplant recipients with delayed graft function. Kidney Int Rep 2021;6(6):1634-41. https://doi.org/10.1016/j.ekir.2021.03.899.
2. Rizzi AM, Riutta SD, Peterson JM, Gagin G, Fritze DM, Barrett M, Sung RS, Woodside KJ, Lu Y. Risk of peritoneal dialysis catheter-associated peritonitis following kidney transplant. Clin Transplant 2018;32(3):e13189. https://doi.org/10.1111/ctr.13189.
3. Dębska-Ślizień A, Bobkowska-Macuk A, Bzoma B, Moszkowska G, Milecka A, Zadrożny D, Wołyniec W, Chamienia A, Lichodziejewska-Niemierko M, Król E, Śledziński Z, Rutkowski B. Paired analysis of outcomes after kidney transplantation in peritoneal and hemodialysis patients. Transplant Proc 2018;50(6):1646-53. https://doi.org/10.1016/j.transproceed.2018.02.104.
4. Dombros N, Dratwa M, Feriani M, Gokal R, Heimbürger O, Krediet R, Plum J, Rodrigues A, Selgas R, Struijk D, Verger C; EBPG Expert Group on Peritoneal Dialysis. European best practice guidelines for peritoneal dialysis. 9 PD and transplantation. Nephrol Dial Transplant 2005;20 Suppl 9:ix34-ix35. https://doi.org/10.1093/ndt/gfi1123.
5. Kwong JCC, Kroczak T, Dahm P, Stewart RJ, Pace KT, Ordon M, Lee Y, Cagiannos I, Lavallée LT, Mallick R, Wallis CJD. Peritoneal dialysis catheter removal at the time of renal transplantation: choosing the optimal candidate. Can Urol Assoc J 2020;14(1):E13-E19. https://doi.org/10.5489/cuaj.6066.
6. Peluso G, Incollingo P, Carlomagno N, D'Alessandro V, Tammaro V, Caggiano M, Barone M, Auriemma R, Amato B, Compagna R. Our timing to remove peritoneal catheter dialysis after kidney transplant. Transplant Proc 2019;51(1):160-3. httpsdoi.org/10.1016/j.transproceed.2018.03.048.
7. Warren J, Jones E, Sener A, Drage M, Taqi A, Griffin S, Luke PPW. Should peritoneal dialysis catheters be removed at the time of kidney transplantation? Can Urol Assoc J 2012;6(5):376-8. https://doi.org/10.5489/cuaj.11265.
8. Bakir N, Surachno S, Sluiter WJ, Struijk DG. Peritonitis in peritoneal dialysis patients after renal transplantation. Nephrol Dial Transplant 1998;13(12):3178-83. https://doi.org/10.1093/ndt/13.12.3178.
9. Pampa-Saico S, Caravaca-Fontán F, Burguera-Vion V, de Nicolás VD, Yerovi-León E, Jimenez-Álvaro S, Cerrillo de la Iglesia M, Díaz-Crespo F, Praga M, Fernández-Juárez G. Outcomes of peritoneal dialysis catheter left in place after kidney transplantation. Perit Dial Int 2017;37(6):651-4. https://doi.org/10.3747/pdi.2016.00203.
10. Burkart JM. Patient education: Peritoneal dialysis (Beyond the Basics) [Internet]. UpToDate; 2025 [cited

2025 Feb 10]. Available from: https://www.uptodate.com/contents/peritoneal-dialysis-beyond-the-basics
11. Redfield RR, Scalea JR, Zens TJ, Muth B, Kaufman DB, Djamali A, Astor BC, Mohamed M. Predictors and outcomes of delayed graft function after living-donor kidney transplantation. Transpl Int 2016;29(1):81-7. https://doi.org/10.1111/tri.12696.
12. Zawistowski M, Nowaczyk J, Domagała P. Peritoneal dialysis catheter removal at the time or after kidney transplantation: a systematic review and meta-analysis. Langenbecks Arch Surg 2022;407(7):2651-62. https://doi.org/10.1007/s00423-022-02637-y.
13. Parks RM, Saedon M. Outcomes of removal of peritoneal dialysis catheter at the time of renal transplant. Saudi J Kidney Dis Transpl 2021;32(2):415-7. https://doi.org/10.4103/1319-2442.335453.
14. Malagon M, Hogg RJ. Renal transplantation after prolonged dwell peritoneal dialysis in children. Kidney Int 1987;31(4):981-5. https://doi.org/10.1038/ki.1987.95.
15. Mezzolla V, Pontrelli P, Fiorentino M, Stasi A, Pesce F, Franzin R, Rascio F, Grandaliano G, Stallone G, Infante B, Gesualdo L, Castellano G. Emerging biomarkers of delayed graft function in kidney transplantation. Transplant Rev 2021;35(4):100629. https://doi.org/10.1016/j.trre.2021.100629.
16. Li PKT, Chow KM, Cho Y, Fan S, Figueiredo AE, Harris T, Kanjanabuch T, Kim YL, Madero M, Malyszko J, Mehrotra R, Okpechi IG, Perl J, Piraino B, Runnegar N, Teitelbaum I, Wong JK-W, Yu X, Johnson DW. ISPD peritonitis guideline recommendations: 2022 update on prevention and treatment. Perit Dial Int 2022;42(2):110-53. https://doi.org/10.1177/08968608221080586.

Submitted 2025-11-29, accepted after revision 2025-12-22, published 2026-03-08