

Bulletin de la Dialyse à Domicile

Use of arteriovenous fistula in peritoneal dialysis in France (RDPLF data)

(Utilisation de la fistule artério-veineuse en dialyse péritonéale en France (Données RDPLF))

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Résumé

Il existe un consensus pour ne pas réaliser systématiquement une fistule artério veineuse (FAV) chez les patients traités par dialyse péritonéale. Nous avons voulu vérifier dans la base de données du Registre de Dialyse Péritonéale de Langue Française (RDPLF), quelles étaient les pratiques en France.

Nous avons sélectionné 4344 personnes de France métropolitaine qui ont cessé leur traitement par dialyse péritonéale entre décembre 2016 et décembre 2021 et qui, avant leur traitement par dialyse péritonéale, n'avaient pas été traitées par hémodialyse ni transplantées.

Uniquement 5,2 % des malades ont eu une FAV en cours de DP, mais 86,7 % ne l'ont pas utilisée. Parmi les malades qui n'avaient pas de FAV, 38 % ont cependant été transférés en hémodialyse, souvent avec un cathéter central.

S'il est probablement important d'avoir un algorithme prévisionnel pour éviter des transferts définitifs en hémodialyse sur cathéter central quand ce transfert peut être planifié, ce rapport supporte l'absence d'intérêt à créer un abord vasculaire systématique en DP, en particulier lorsqu'il y a un projet de greffe rénale.

Mots clés : dialyse péritonéale, fistule artério-veineuse, transferts dialyse péritonéale

Summary

There is a consensus not to systematically create arteriovenous fistula (AVF) in patients treated with peritoneal dialysis. We wanted to verify in the French Language Peritoneal Dialysis Register (RDPLF) database what the practices are in France.

We selected patients who stopped peritoneal dialysis between December 2016 and December 2021 and who, before their peritoneal dialysis treatment, had not been treated with hemodialysis or transplant before.

Only 5.2% of patients had an AVF during PD, and 86.7% of these did not use it. Of the patients who did not have AVF, however, 38% were transferred to hemodialysis, often with a central venous catheter.

While it is probably important to have a predictive algorithm to avoid definitive transfers in hemodialysis with a central venous catheter when this transfer can be planned, this report confirms the pointlessness of creating a systematic vascular access in PD, particularly when there is a kidney transplant project.

Key words : peritoneal dialysis, arterio-venous fistula, peritoneal dialysis transition

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INTRODUCTION

By definition, treatment by peritoneal dialysis does not require recourse to extracorporeal circulation. Previous work on the value of a «for safety» arteriovenous (AVF) fistula in peritoneal dialysis is contradictory, and is often based on single-center studies and a small number of patients. There are no simple recommendations available [1-3]. The aim of this report is to describe the practices in France concerning the joint realization of an AVF for hemodialysis in patients treated by peritoneal dialysis in the French-language Peritoneal Dialysis Registry (RDPLF).

METHODS

RDPLF data base structure

The operation of the RDPLF registry and the structure of the database are described elsewhere [4]. The vascular access variable is a recent introduction in the data collection, which does not provide reliable information on this subject prior to December 1, 2016.

Patient selection

Selection for main study

The study included:

- All patients in mainland France who definitively stopped, for whatever reason, treatment by peritoneal dialysis between December 1, 2016 and December 1, 2021.
- Patients whose only treatment was peritoneal dialysis, and who had therefore never been treated by hemodialysis or transplantation before.

Patients aged less than 18 years at the start of dialysis and those whose indication for peritoneal dialysis was heart failure linked to cardiorenal syndrome were excluded.

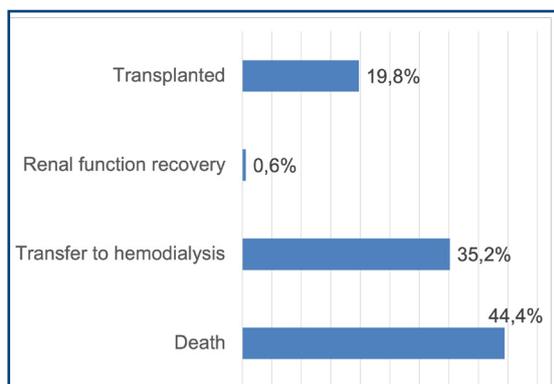
Selection for complementary study (patients currently under treatment)

In order to have a «photograph» of the patients undergoing treatment, we also calculated the percentage of patients in mainland France who were carriers of AVF and undergoing treatment in October 2021.

RESULTS

The reasons for which peritoneal dialysis was stopped during the study period are summarized in Figure 1, and the causes of transfers as well as the duration of treatment before transfer are summarized in Table 1.

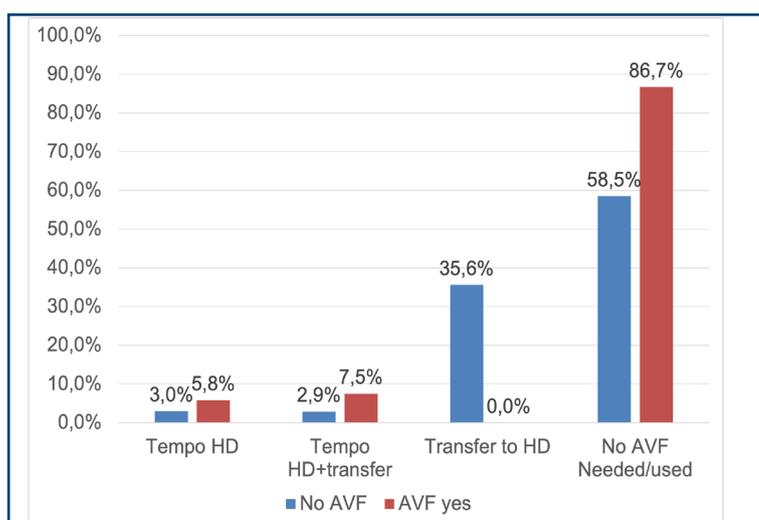
- 4,344 patients stopped PD during the study period and were included.
- 4,119 (94.8%) patients did not have an AVF when PD was stopped and 226 (5.2%) patients had an AVF performed before starting PD or during treatment.



↑ Figure 1. Reasons for stopping peritoneal dialysis in metropolitan France between December 2016 and December 2021

↓ Table I. Causes of definitive transfers in hemodialysis and median duration of treatment, in months, before transfer to hemodialysis

	Nombre	%	Durées médiane de traitement
Peritonitis	366	14,9%	18
Catheter Malfunction	227	9,2%	6
Insufficient dialysis adequacy	741	30,2%	25
Insufficient ultrafiltration	240	9,8%	20
Patient's incapacity	74	3,0%	10
psychological intolerance	92	3,7%	12
Helper missing	12	0,5%	9
Repeted acute pulmonary oedema	53	2,2%	15
Other causes	706	26,6%	15



↑ Figure 2. Percentage of use of hemodialysis according to the presence or absence of an AVF. The last group of columns represents the percentage of patients who did not need an AVF, whether or not they had this vascular access. Tempo HD : patients having temporary hemodialysis (HD) without definitive transfer ; Tempo HD+transfer : temporary HD with final definitive transfer. To AVF needed : those patients never needed a vascular access. No AVF : patient without AVF, AVF yes : patients who had an AVF created during their PD treatment.

Among the 226 patients who had had an AVF:

- 13 had one or more periods of temporary hemodialysis without the need for a final transfer to hemodialysis, and 17 had one or more periods of temporary hemodialysis followed by a final transfer to hemodialysis.
- 196 (86.7%) did not need their AVF.

Among patients who did not have AVF (4,119) :

- 242 (5.9%) needed one or more hemodialysis sessions. Of these, 122 had only temporary hemodialysis, and 120 had temporary hemodialysis sessions followed by a definitive transfer to hemodialysis.
- 1466 (35.6%) were definitively transferred to hemodialysis;
- 760 patients were transplanted and 42 (5.5%) required temporary HD sessions (on a central venous catheter in 93% of cases).

Status of patients undergoing treatment on December 1, 2021:

As of December 1, 2021, among the 2,186 patients who had never undergone dialysis before PD and were undergoing treatment, 2,125 (97.2%) did not have an AVF and 61 (2.8%) had an AVF. These patients were divided among 37 centers of 148.

Among the 37 centers that had patients who were undergoing treatment and were carriers of an AVF performed since the start of their PD treatment:

- those that treated less than 10 patients have 29% of their patients with AVF
- those that treated between 10 and 20 patients have 13% of their patients with AVF
- those that treated more than 20 patients have 6% of their patients with AVF.

DISCUSSION

This study shows that in the vast majority of cases, patients treated by peritoneal dialysis in mainland France do not have AVF. This practice is found in patients who have left PD in the past 4 years as well as in those who are currently undergoing treatment. In the centers which have patients who are carriers of an AVF undergoing treatment with PD, the percentage of patients with AVF is lower when the number of patients in the center is higher. It can therefore be assumed that centers with larger PD programs have more confidence in the technique and are less inclined to perform a so-called «safety» AVF.

Examination of Figure 1 shows that 88% of naive patients who left the treatment during the last 4 years, and in whom an AVF was performed during their treatment, did not need this fistula. While 59% of those who had not had a fistula did not need it either, 41% of these were transferred to hemodialysis, probably often unplanned, with a central venous catheter.

The limits of this study are linked to the design of the RDPLF database. The variable that indicates the presence or absence of an AVF is a binary one, yes or no, and it recorded and modified with dates. Most centers do not modify the entry of the variable during the transfer to HD, so that it is possible that a number of patients who were registered as «non-carriers» of an AVF during the transfer to HD had actually had a vascular preparation when the transfer was planned.

This could be the case for those transferred for poor dialysis adequacy or insufficient ultrafiltration. It can be seen in Table 1 that the transfer for this reason takes place on average within two years. However, we know from data from the REIN* registry (*Personal communication, Cécile Couchoud and Mathilde Lassalle*) that approximately 25% of patients transferred to HD are transferred to HD with a central venous catheter. This fairly closely mirrors what is observed in the RDPLF: these must be emergency transfers that are probably unplanned. This may also be the case for those who were transferred for severe or recurrent peritonitis, which represents 13.6% of the causes of transfer in this study (Table I). This was previously reported in the study by Boissinot et al., which showed the almost systematic recourse to the use of a central catheter in the event of an unplanned transfer to hemodialysis [5].

In any case, these emergency transfers, which cannot be planned, do not justify carrying out a so-called safety AVF, which will be useless for the great majority of patients and will limit their possibilities of vascular access in the future, when they have need of it.

An upcoming modification of the method of collecting information in the RDPLF database will make it possible to obtain, when it exists, the date of the vascular access before transfer to hemodialysis.

Few of the transplanted patients in this study required periods of temporary hemodialysis. This fact justifies not carrying out a safety AVF in this group of patients to spare their vascular capital in the event of a subsequent rejection of the transplant, which is often followed by hemodialysis treatment [6]. For this group of patients, the use of a temporary central venous catheter over a short period has little risk of amputating their vascular capital in the future.

Finally, it should be remembered that the Haute Autorité de Santé in France recommends not planning an arteriovenous fistula in patients awaiting transplantation [3].

It would undoubtedly be useful to have decision-making flowcharts, as has been proposed by other teams [5], to predict the need for hemodialysis.

CONCLUSION

In the context of France in 2021, this study confirms the older work which demonstrates the pointlessness of systematically creating a fistula in peritoneal dialysis patients, particularly when they are registered on a transplant waiting list. One of the advantages of peritoneal dialysis is to preserve the vascular accesses which any patient with chronic renal failure may one day need. However, each center should follow a decision algorithm in order to be able to perform an arteriovenous fistula in advance when a transfer to hemodialysis is highly probable.

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*REIN :<https://www.agence-biomedecine.fr/R-E-I-N-Reseau-Epidemiologique-et-Information-en-Nephrologie>

language peritoneal and home hemodialysis registry and the high quality of the data they regularly transmit, and hope that this work will help them in the care of their patients.

The authors would also like to thank Ms. Katia Guérin for the data entry check she performs daily to ensure the reliability of the data recorded, and for the layout of this article.

Conflict of interest

The authors declare no conflict of interest for this article.

Submission

This article is a short report for information on one aspect of the data recorded in the RDPLF. It has not been subject to double-blind review by external peers, but has been reviewed internally by 4 members of the BDD editorial board.

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