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► **To cite this version:**

Nolwenn Lorcy, Valérie Turmel, Emmanuel Oger, Cécile Couchoud, Cécile Vigneau. Opinion of French nephrologists on renal replacement therapy: survey on their personal choice. *Clinical Kidney Journal*, Oxford University Press, 2015, 8 (6), pp.785-788. 10.1093/ckj/sfv093 . hal-01217982

HAL Id: hal-01217982

<https://hal-univ-rennes1.archives-ouvertes.fr/hal-01217982>

Submitted on 17 Jun 2022

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ORIGINAL ARTICLE

Opinion of French nephrologists on renal replacement therapy: survey on their personal choice

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Abstract

Background: In France, like in most developed countries, peritoneal dialysis (PD) is less used than haemodialysis (HD). This is not based on medical evidence supporting HD superiority. As the practitioner's opinion is important to patients and may influence their treatment choice, we conducted a survey among French nephrologists to determine which renal replacement therapy (RRT) they would choose if they had end-stage renal disease (ESRD).

Methods: We e-mailed a self-administered questionnaire to all members of the French-speaking Nephrology Society between 19 October 2008 and 12 January 2009. We then selected from the French Renal Epidemiology and Information Network (REIN) registry a reference population of 20- to 64-year-old patients with ESRD who began RRT [HD, PD or pre-emptive transplantation, (PT)] in 2008.

Results: The survey response rate was 17.8%. Results showed that 59.6% of respondents chose early inscription on the transplantation waiting list in view of PT, 20.2% selected HD and 20.2% selected PD. When dialysis was the only choice, 50.2% chose HD and 49.8% chose PD. Younger nephrologists (≤ 44 years old) selected PD more frequently than older nephrologists (≥ 45 years old) (58.9 versus 40.5%; $P < 0.01$). Similarly, PD was chosen more often by nephrologists from regions with 'more PD' than from regions with 'less PD' (79.0 versus 48.8%; $P < 0.05$). The nephrologists' choices were different from the RRT distribution among the reference population: 81.7% HD, 10.1% PD and 8.2% PT.

Conclusion: Our survey on the theoretical choice of RRT suggests that the low PD rate in France cannot be explained by a negative opinion of PD among French nephrologists.

Key words: haemodialysis, opinion survey, peritoneal dialysis, therapeutic education

Received: July 20, 2015. Accepted: August 31, 2015

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Introduction

In France, peritoneal dialysis (PD) is less used than haemodialysis (HD) for the treatment of patients with end-stage renal disease (ESRD), with an incidence of 11% in 2013 and a prevalence of 6.7% at the end of 2013 [1]. The situation is similar in Europe, according to the ERA-EDTA registry [2]. This difference is not explained by medical evidence supporting HD superiority over PD, except perhaps in some subgroups of patients, for instance, elderly people [3]. The lack of consensual medical criteria for dialysis modality selection and extra-medical features, such as health-care facility factors, may explain differences between countries and between regions of large countries.

Surveys to practitioners have been previously used to determine the criteria of dialysis modality choice by analysing the daily medical practice [4–6]. In survey questionnaires, nephrologists from Canada, the USA and the British Isles declared that the choice was strongly based on patient preference, quality of life and morbidity and mortality data. All nephrologists agreed on the importance of the patient's free choice. Moreover, to involve patients in the decision-making process, physicians must provide clear information on the different dialysis modalities. However, the way physicians present such information may affect patient choice [7] and could be biased by their own opinion. Therefore, the nephrologists' negative opinion on PD could be one explanation for the low incidence and prevalence of PD. Indeed, in France, regional discrepancies on PD utilization seem to be linked to the nephrologist's opinion [8]. However, no national survey has been carried out to assess what nephrologists would choose if they needed renal replacement therapy (RRT). Therefore, we sent an e-mail questionnaire to French nephrologists asking about their choice of RRT if they had ESRD.

Materials and methods

A self-administered survey (e-questionnaire) was sent by e-mail to all members of the French-speaking Nephrology Society between 19 October 2008 and 12 January 2009. The questionnaire included questions on demographic data and about the RRT modality they would choose if they had ESRD.

We then used the French Renal Epidemiology and Information Network (REIN) registry [9] to select a reference population of 20- to 64-year-old patients with ESRD who began RRT [HD, PD or pre-emptive transplantation (PT)] between 1 January 2008 and 31 December 2008 and who came from the same regions as the respondent nephrologists. We included 3094 patients. Sex, age, region of residence and first RRT were recorded.

To compare the nephrologist's RRT choice and the nephrologist's prescription, we first estimated the nephrologist's response (expected response) based on the hypothesis that the nephrologist's choice would match the patient's treatment. To this aim, respondent nephrologists and the reference patient population were divided into subgroups based on age and region of residence. For example, if 30% of patients between 20 and 44 years of age and living in a given region were treated with PD, we supposed that 30% of nephrologists in the same age group and from the same region would choose PD. The expected responses were then compared with the obtained responses in the survey. This intermediate step was introduced to limit the bias due to differences in age or region of residence between nephrologists and patients.

Qualitative variables were compared by using the χ^2 test or the Fisher's exact test when the theoretical size was smaller than five. Quantitative variables were compared with the Student's

t-test. For comparisons between nephrologists and patients, results were first standardized relative to age before analysing them with the χ^2 test. Differences were considered significant when $P < 0.05$.

Results

Questionnaire responses

Overall, the response rate to the questionnaire was 14.5% (298 responses for 2052 questionnaires sent by e-mail, including probably some expired and double addresses) and 17.8% for nephrologists working in France (283 responses for 1587 questionnaires). Among the respondents, 61.7% were men and the median age was 45 years. They were involved mainly in dialysis care (74.5% of them) and less in transplantation work (37.6% of them) (several choices were possible).

Early inscription on a transplantation waiting list in view of PT, with a median glomerular filtration rate of 17.5 mL/min at inscription, was the most frequent treatment choice (58.4% of respondents). This was followed by HD (21.1%) and then PD (20.5%). Younger physicians (≤ 44 years of age) more frequently chose early inscription in view of PT than older nephrologists (age range 45–64 years) (68.1 versus 50.7%; $P < 0.01$) and less often HD (10.6 versus 29.7%; $P < 0.001$; Figure 1). There was no difference between women and men.

If dialysis was the only available option, HD and PD were similarly chosen (50.7 and 49.3%), with more PD choices among younger nephrologists (58.9 versus 40.5%; $P < 0.01$; Figure 2).

When asked to explain their choice, 86.9% of respondents who chose PD insisted on the modality flexibility that gave more professional freedom. Personal life was emphasized by 58.7% of nephrologists who chose HD and by 65.6% of those who chose PD. Dialysis efficiency was the major criterion for nephrologists who chose HD (84.1%). On the other hand, only 31.2% of those who chose PD mentioned dialysis efficiency. In the open comment section of the e-questionnaire, home dialysis was associated with more autonomy. People who chose PD also took into consideration vascular access protection.

Regional differences

The region groups were defined based on the RRT modality incidence in the reference population. PD incidence was $< 5\%$ in three administrative regions called 'less PD' (Aquitaine, Centre and

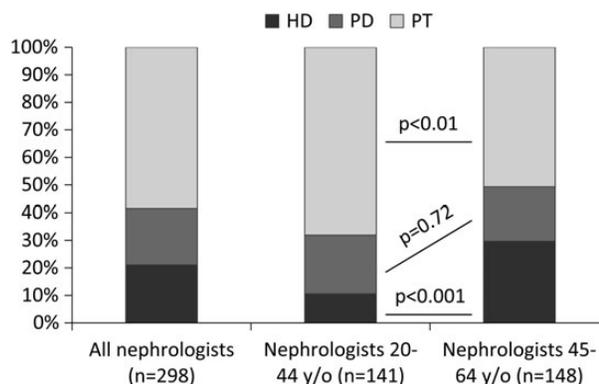


Fig. 1. First choice of RRT among the 298 nephrologists and comparison between the two age groups (χ^2 test). PT, pre-emptive transplantation; PD, peritoneal dialysis; HD, haemodialysis.

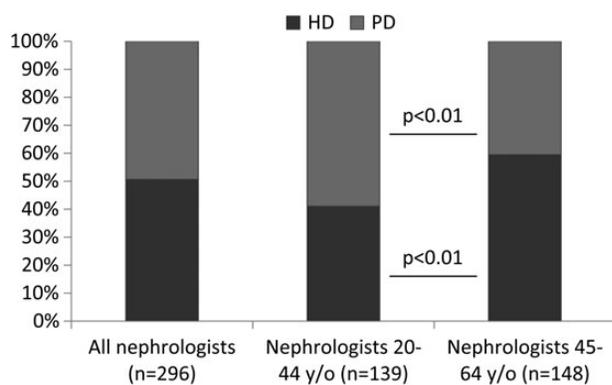


Fig. 2. Choice of dialysis method among the 296 nephrologists and comparison between the two age groups (χ^2 test). PD, peritoneal dialysis; HD, haemodialysis.

PACA) and >20% in two regions called 'more PD' (Basse-Normandie and Haute-Normandie). PT incidence was <5% in seven regions called 'less PT' (Auvergne, Bourgogne, Champagne-Ardenne, La Réunion, Languedoc-Roussillon, Nord-Pas de Calais and Picardie) and >15% in two regions called 'more PT' (Pays de la Loire and Poitou-Charentes). The last six regions constituted the reference area. Patients from the 'less PT' regions were significantly older than those from the 'more PT' regions (84.9 versus 68.5 in the 45- to 64-year-old group; $P < 0.001$) and from the reference area (72%; $P < 0.001$). There was no age difference between patients from the 'less PD', 'more PD' and reference regions ($P = 0.10$). Similarly, no age difference was found among nephrologists from the different regions ($P = 0.44$).

Overall, there were regional differences in the survey response rate: 31.1% of nephrologists from the 'more PD' areas answered, compared with only 19.0% in the 'less PD' regions. Likewise, 24% of nephrologists from the 'more PT' areas filled in the questionnaire, compared with 14.5% from the 'less PT' regions. Nephrologists from the 'less PT' regions less frequently chose PT than nephrologists from the reference area (38.6 versus 60.0%; $P < 0.05$) and more often chose PD (36.4 versus 15.2%; $P < 0.01$). Likewise, after exclusion of the PT option, nephrologists from the 'more PD' regions chose significantly more PD than nephrologists from the 'less PD' regions (79.0 versus 48.8%; $P < 0.05$).

Comparison of nephrologists' and patients' choices

For comparison with the reference population of patients, nephrologists >65 years of age or from regions that were not included in the REIN registry at the survey date were excluded. Finally, the answers of 257 nephrologists were retained for comparison with the patients' choice of first treatment (Table 1). PT, which was the first RRT for 8.2% of the reference population and was estimated to represent 11.5% of the expected responses, was chosen by 59.6% of respondents (obtained responses) ($P < 0.001$). HD was the most frequent first RRT in the reference population (81.7%, and thus 77.3% of expected responses), but represented only 20.2% of the obtained responses ($P < 0.01$).

Discussion

The results of our survey suggest that, in France, the low prescription of PD is not linked to a negative opinion on this RRT methodology among nephrologists. Indeed, nephrologists more often chose PD as an RRT modality than they prescribed it. We think that these results are of great interest, but they need to be

Table 1. First choice of RRT: comparison between expected response and obtained response (χ^2 test)

First choice of RRT	Nephrologists (n = 257)		Incident patients in 2008 (n = 3094)	P
	Obtained response	Expected response		
HD	52 (20.2%)	201 (77.3%)	2529 (81.7%)	<0.001
PD	52 (20.2%)	29 (11.2%)	312 (10.1%)	<0.01
PT	153 (59.6%)	30 (11.5%)	253 (8.2%)	<0.001

taken with caution. Nephrologists are highly specialized practitioners and therefore are particularly well informed on the advantages and side effects of each RRT modality. Moreover, being transplanted before dialysis requirement supposes having no emergency dialysis start (which represents 30% of all new dialysis treatments in France) and no transplantation contraindications. It is interesting to note that the main reason for their choice was the professional and personal freedom, not the technique efficiency, as previously observed in patient surveys [7].

Our survey highlights the existence of regional variations concerning the incidence of the different RRT modalities. Local theoretical and practical medical training differences could influence the prescription and the information given to patients. Moreover, changing the training on PD could diversify the nephrologists' practice and could also improve the type of information (clearer and with less bias) given by doctors to patients. In a European survey that included almost 4000 patients [10], more than one-third of patients did not remember information about other dialysis modalities than their current one. In addition, patients who said they had been involved in the treatment choice felt more satisfied about it. Finally, patients were more satisfied about information on in-centre HD than on home-based therapy.

The reference patient population was selected from the French ESRD registry. Almost all the French incident 20- to 64-year-old patients were included. Differences between their treatment choice and the nephrologists' responses were obvious. However, the survey question was theoretical, and respondents were active and healthy people, and thus the comparison is limited.

Ideally, PT is the treatment of choice for ESRD. Many studies have shown its superiority in terms of morbidity and mortality compared with dialysis and transplantation after dialysis [11–13]. The response to our survey (58.4% of respondents chose PT as the treatment of choice) agrees with this. However, in the clinic, many factors can limit its development, such as the long waiting time due to organ shortages and late referral to nephrologists. Furthermore, the respondent nephrologists considered that their medical condition allowed PT, although this is not always the case. Indeed, often ESRD is detected at a very late stage or comorbidities limit the safety of kidney transplantation. In addition, we could not compare the nephrologists' choice of PT with the real number of PT choices by patients, because we did not know the number of patients on the waiting list for PT, but only the number of patients who received a kidney transplant.

Finally, the survey response rate was low but was similar to that of other surveys. Moreover, there were regional discrepancies, with more respondents from the 'more PD' and 'more PT' areas than from the 'less PD' and 'less PT' regions. No information exists about sex, age, occupation or healthcare centre types for all French nephrologists. Therefore, we cannot be sure that they are representative of the entire French-speaking nephrologist population.

In conclusion, our survey did not identify any negative opinion concerning PD among French-speaking nephrologists that could explain the low PD rate in France. In the absence of the PT option (their preferred treatment modality), no significant difference was found in the number of nephrologists who chose PD or HD. The regional variations in the treatment of patients with ESRD could mirror differences in medical training and its importance for the choice of the first RRT.

Acknowledgements

We thank all the members of the French-speaking Nephrology Society who took time to answer to our survey. The results presented in this paper have not been published previously in whole or part, except in abstract format.

Conflicts of interest statement

None declared.

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